

Department of Computer Science
Graduate Program
Self-Study

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Executive Summary

UT Dallas Computer Science Department has grown very rapidly in the last several years. Today, our department is one of the largest in the country, with an excellent student body of around 1350 taught by an internationally recognized faculty of 44 and 10 experienced senior lecturers. In Fall 2002, the department moved into a new 150,000 sq. ft. building with modern classrooms and state-of-the-art laboratories.

UT Dallas Computer Science Department offers the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy in Computer Science. The Bachelor of Science in Software Engineering degree program was launched in 2001 as one of the first undergraduate Software Engineering programs in the country. In the master's degree programs, Software Engineering is offered as a distinct major. The Ph.D. degree in Software Engineering became available in 2003. Interdisciplinary programs include Computer Engineering as well as Telecommunications Engineering programs. According to the ASEE statistics, UT Dallas Computer Science Department is one of the top five in the nation in terms of the total number of Computer Science degrees awarded annually. During the calendar year 2006 the department awarded a total of 30 PhD degrees.

Based in large part on a 5-year, \$300 million initiative involving the State of Texas, the University of Texas System and Texas Instruments, UT Dallas Jonsson School of Engineering and Computer Science is strengthening and expanding its programs by recruiting outstanding faculty and PhD students, increasing funded research, and establishing new programs. The Computer Science Department has significantly benefited from this research initiative. We have added 6 new, excellent faculty in the last two years and recruited a significant number of new full-time PhD students recently. We are continuing our effort to recruit senior level faculty in the areas of Bioinformatics, Intelligent Systems, and fill an endowed chair in Software Engineering.

The Computer Science faculty is committed to maintaining academic and scholarly excellence. They are actively engaged in leading-edge computer science research funded by the National Science Foundation, the Defense Advanced Research Projects Agency, the Department of Defense, the Office of Naval Research, the National Institute of Standards and Technology, Sandia National Laboratories, and the Texas Advanced Research/Technology programs. Faculty members also collaborate on research with major companies such as Alcatel, Texas Instruments, and Nortel Networks. Several junior faculty members have been presented with the NSF Career awards in recognition of their excellent research potential. The faculty serve as editors and editors-in-chief of major computer science journals, and help lead numerous international conferences as conference chairs or program committee chairs/members. In 2006 the faculty published over 300 papers in major professional journals and international conferences.

UT Dallas Computer Science Department, based on the caliber of existing faculty, the anticipated addition of new faculty as well as the continued recruitment of outstanding

students in the future, is very well poised to fulfill its mission, goals and aspiration to become a top ranked department in the nation.

1. History

The University of Texas at Dallas owes its existence to the enlightened generosity of Erik and Margaret Jonsson, Cecil and Ida Green, and Eugene and Margaret McDermott who founded the Southwest Center of Advanced Studies (SCAS) in 1962. SCAS, originally known as the Graduate Research Center of the Southwest, existed to promote research and graduate education throughout the region in collaboration with existing universities. The Center's strategy was initially to achieve excellence in a few carefully chosen areas such as space science, relativity and cosmology, geophysics and molecular biology. In 1969, it became the University of Texas at Dallas which, until 1975, was a graduate school only, and has quickly evolved into the leading institution in the Dallas area.

The University has experienced tremendous growth over the past several years. Student enrollment reached 14,523 (up 55% since 1996) and faculty size reached 698 (368 full-time) in Fall 2006. At the same time, UT Dallas has remained highly selective with its freshman class consistently ranking among the top three public universities in the State of Texas in terms of SAT scores (average of 1245 in Fall 2006) and students in the top 10% of their class. A building boom since 2001 added over 500,000 square feet of new academic space.

Computer Science education at UT-Dallas started in the late 70s as a graduate level concentration within Mathematical Sciences. The first doctoral degrees were awarded in 1980. Computer Science became increasingly independent in the early 80s with the approval of MS and PhD degrees in Computer Science. By 1985, faculty size (which fluctuated in the 4-6 range for several years) doubled and the number of CS majors reached 600. At that time, Computer Science moved from the School of Natural Sciences and Mathematics into the newly established School of Engineering and Computer Science to which it provided a tremendous head-start.

The Erik Jonsson School of Engineering and Computer Science was founded in 1986 and moved into a new facility in 1992. The School has a leading role in achieving the stated mission of UT Dallas "to be one of the nation's best public research universities and one of the great universities in the world". The School's enrollment in Fall 2006 is 2,667.. Software Engineering became a recognized Major in 1994 with the approval of the Master of Science in Computer Science with Major in Software Engineering degree. Interdisciplinary degrees in Telecommunications Engineering (BS, MS) and Computer Engineering (MS) were added. The B.S. Degree in Software Engineering was approved in November of 2000. In Fall 2002, the Department of Computer Science moved to a new 152,000 sq. ft. building with 10 modern classrooms. The addition of the new building more than doubled the space available to the School of Engineering and Computer Science. In November 2002, new PhD degrees were approved in Telecommunications Engineering (the first in the nation), Computer Engineering, and Software Engineering (among a handful in the nation). The B.S. degree in Computer Engineering became available in Fall 2006.

2. Mission and Goals

2.1 UT Dallas' Mission, Vision and Goals

Mission

The mission of the University of Texas at Dallas is to serve the Metroplex and the State of Texas as a global leader in innovative, high quality science, engineering, and business education and research.

The University is committed to (i) producing engaged graduates, prepared for life, work, and leadership in a constantly changing world, (ii) advancing excellent educational and research programs in the natural and social sciences, engineering and technology, management, and the liberal, creative and practical arts, and (iii) transforming ideas into actions that directly benefit the personal, economic, social and cultural lives of the citizens of Texas.

Vision

To be one of the nation's best public research universities and one of the great universities in the world

Goals

The University of Texas at Dallas aspires to be:

- A first-rank public research university with focused centers of excellence, prepared to meet the challenges of a rapidly changing, technology-driven global society
- A global force in innovative, transdisciplinary research and education in emerging areas of technology, science, and learning
- A ground-breaking leader in both framing and answering the questions faced by business, policy makers, healthcare, and the public
- A synergistic partner with local industry, government, and cultural organizations as well as local K-12 schools, community colleges, and universities
- One of the most creative, innovative universities in the nation and world.

2.2 Jonsson School's Mission

Engineering is central to the mission of the University of Texas at Dallas
"...to serve the Metroplex and the State of Texas as a global leader in innovative, high quality science, engineering, and business education and research."

A new mission statement for the Erik Jonsson School of Engineering and Computer Science was prepared in the Spring of 2004.

This new mission endeavors to:

- Deliver a state-of-the art high technology engineering education for Dallas and Collin Counties, the DFW Metroplex, and the State of Texas. This goal is to be achieved by developing highly effective B.S. and M.S. Coursework Degree programs as well as M.S. and Ph.D. Thesis Degree programs. The Jonsson School aspires to impart knowledge in a way that will produce “agile” students with innovative and entrepreneurial skills.
- Create new state-of-the art engineering knowledge through research and technology transfer. The research produced will be the outcome of M.S. and Ph.D. Theses.
- Develop partnerships with government and the private sector to apply new knowledge for economic growth and high tech job creation in order to strengthen existing regional firms, promote the growth of new regional firms, as well as create new high-paying private sector jobs.
- Provide leadership and outreach to nurture tomorrow’s leaders in science, mathematics, and high technology education and business.

A concrete goal of the Jonsson School is to be rated one of the top 50 engineering schools in the country within 5 years. Considerable resources and efforts are being invested to reach this goal. This includes the Jonsson School Research Excellence Initiative (JSRE) through which the state of Texas will invest \$300 million in education and research in engineering, science, and computer science during the period 2003-2008.

2.3 Department of Computer Science’s Mission

The mission of the Department of Computer Science is to prepare undergraduate and graduate students for productive careers in industry, academia, and government by providing an outstanding environment for teaching, learning, and research in the theory and applications of computing. The Department places high priority on establishing and maintaining innovative research programs to enhance its education quality and make it an important regional, national and international resource center for discovering, integrating and applying new knowledge and technologies.

The Department of Computer Science aspires to be one of the top 25 departments in the nation within the next five years. Considerable effort and resources (e.g., the Jonsson School Research Excellence Initiative - JSRE) are being invested to reach that goal.

Mission of the MS in CS Program

The mission of the Master's degree program in Computer Science is to provide students with a solid foundation in theory and practice of computer science, and to prepare them for productive long-term careers in industry and government. The program prepares graduates to become key contributors in industry and/or academia, and to further their education by entering a doctoral degree program.

Mission of the Ph.D. in CS/SE Program

The mission of the PhD degree program in Computer Science is to provide students with an advanced education in Computer Science and prepare them for long and successful professional and/or research careers in industry, government, or academia. The program prepares graduates to perform research and development (R&D) independently, formulate novel problems, develop creative solutions to novel and existing problems, and serve as system architects and leaders of design teams.

3. Department Faculty

3.1. Faculty

The tenured and tenure-track faculty of the Computer Science Department consists of 15 full professors (including one professor emeritus), 18 associate professors and 12 assistant professors. There are also 9 senior lecturers engaged in full-time teaching and program services (advising graduate (M.S.) and undergraduate students). The Department currently has 3 postdoctoral research associates and 7 visiting scholars.

Professors: Farokh Bastani, Ramaswamy Chandrasekaran, Ding-Zhu Du, András Faragó, Gopal Gupta, D. T. Huynh, Dan Moldovan, Simeon C. Ntafos, Balaji Raghavachari, Edwin Sha, Ivan H. Sudborough, Bhavani Thuraisingham, Klaus Truemper (Emeritus), Kang Zhang, Si Qing Zheng

Associate Professors: Sergei Bereg, Lawrence Chung, Jorge A. Cobb, Ovidiu Daescu, G. R. Dattatreya, Sanda Harabagiu, Vasileios Hatzivassiloglou, Jason Jue, Latifur Khan, Rym Mili, Ivor P. Page, B. Prabhakaran, Ravi Prakash, Haim Schweitzer, Subbarayan Venkatesan, Yuke- Wang, W. Eric Wong, I-Ling Yen

Assistant Professors: Joao Cangussu, Kendra M.L. Cooper, Jing Dong, Xiaohu Guo, Kevin Hamlen, Murat Kantarcioglu, Yang Liu, Ying Liu, Vincent Ng, Neeraj Mittal, Kamil Sarac, Weili Wu

Senior Lecturers: Tim Farage, Herman Harrison, Sam Karrah, Lawrence King, Greg Ozbirn, David Russo, Cort Steinhurst, Anthony Sullivan, Laurie Thompson, Nancy Van Ness

3.2. Faculty Research Activities

The research interests and activities of the tenured and tenure-track faculty span most areas in computer science. The faculty is committed to maintaining academic and scholarly excellence. They are actively engaged in cutting-edge computer science research and publishing numerous papers in leading professional journals and major conferences in their fields. The faculty has over 40 current memberships on editorial boards of major journals in their fields (See Appendix I). In calendar year 2006 the faculty published more than 340 journal and conference papers (See Appendix II). There are 5 main research groups:

Theory

Faculty in the theory area includes Professors Sergey Bereg, Ramaswamy Chandrasekaran, Ovidiu Daescu, Ding-Zhu Du, Simeon Ntafos, Balaji Raghavachari, and Hal Sudborough. Their research interests include Computational Complexity, Design and Analysis of Algorithms, Computational Biology, Discrete and Computational Geometry, Network Design, Combinatorial Optimization, Mathematical Programming, Scheduling, Approximation Algorithms, and Automata Theory and Formal Languages.

Intelligent Systems

Faculty in the Intelligent Systems area includes Professors Farokh Bastani, Sanda Harabagiu, Vasileios Hatzivassiloglou, Latifur Khan, Yang Liu, Dan Moldovan, Vincent Ng, Haim Schweitzer, and Klaus Truemper. Their research interests are Natural Language Processing, Speech Recognition, Information Retrieval, Web Technologies, Multimedia Processing, Computer Vision, Computational Logic, Machine Learning, Knowledge Representation and Reasoning, Neuroscience, Data Mining, Constraint Satisfaction, Computational Statistics and Game Theory.

Computer and Telecommunications Networks

The Networks group consists of Professors Jorge Cobb, G.R. Dattatreya, Andras Farago, Jason Jue, Neeraj Mittal, Ivor Page, B. Prabhakaran, Ravi Prakash, Kamil Sarac, S. Venkatesan, and S.Q. Zheng. Their research interests include Wireless Networks, Mobile and Ad Hoc Networks, Sensor Networks, Optical Networks, Quality of Service, Network Reliability, Distributed Computing, Network Security, and Internet Technologies.

Computer Systems

Faculty in the Computer Systems area includes Gopal Gupta, Xiaohu Guo, Kevin Hamlen, Latifur Khan, Murat Kantarcioglu, Balakrishnan Prabhakaran, Edwin Sha, Bhavani Thuraisingham, Yuke Wang, Weili Wu, I-Ling Yen, Kang Zhang, and S.Q. Zheng. Their research interests are Embedded Systems, Operating Systems, Compilers and Language Processors, Logic Programming, Parallel and Distributed Systems, Databases, Data Mining, Visual Languages, Multimedia Systems, Information Assurance and Security, and Web-based Systems.

Software Engineering

The Software Engineering faculty includes Professors Farokh Bastani, Joao Cangussu, Lawrence Chung, Kendra Cooper, Jing Dong, D.T. Huynh, Simeon Ntafos, Eric Wong, I-Ling Yen, and Kang Zhang. Their research interests include Requirements Engineering, Software Architecture, Process Modeling, High-Assurance Design, Component-Based Development, Automated Code Synthesis, Domain-Specific Languages and Frameworks, Visual Programming, Automated Testing, Model Checking, Formal Methods, Reliability Analysis, Metrics and Reuse.

Within the Department there are three research centers: Embedded Software Center, Cyber Security Research Center, and the Human Language Technology Research Institute.

Embedded Software Center

The Embedded Software Center, directed by Dr. Farokh Bastani, is a collaborative center for advanced research to dramatically increase the productivity and dependability of complex embedded applications. The center faculty, including Professors Farokh Bastani, Kendra Cooper, Jing Dong, Latifur Khan, Eric Wong, and I-Ling Yen, have collaboration with or funding from the National Science Foundation, the Department of Defense, NASA, Avaya Research Labs, IA Tech, and TI. Current and recent projects include: High-Assurance Synthesis of Embedded Software Systems, A Testing Framework for Reproducible Execution and Race Condition Detection in Real-Time Embedded Systems, A Defect Model for Improving Software Quality, Federation of Distributed Presence Servers, and Dynamic End-to-End (E2E) Dependability Assurance for Command-and-Control Systems.

Cyber Security Research Center

Directed by Dr. Bhavani Thuraisingham, the Cyber Security Research Center (CSRC) is part of UT Dallas Cyber Security and Emergency Preparedness Institute and has been designated as a National Center of Academic Excellence in Information Assurance Education by both the National Security Agency and the Department of Homeland Security. UT Dallas researchers in Cyber Security are collaborating with researchers around the world. UT Dallas Cyber Security and Information Assurance Research being carried out by over twenty faculty members is currently focusing on Network Security, Systems and Language Security, Data and Applications Security, Intrusion Detection, Security Theory, and Protocols and Security Engineering. There are also some cross cutting themes such as vulnerability analysis, access control, and trust management. CSRC also hosts UT Dallas' annual Cyber Security Symposium that brings together security researchers and practitioners from academia, industry and government.

CSRC research has been funded by the National Science Foundation, Office of the Secretary of Defense, the Environmental Protection Agency as well as from corporations such as CISCO and Microsoft. The center is expanding its sponsor base to include agencies such as the Air Force Office of Scientific Research, National Geospatial Imagery Agency, Army Research Office, Office of Naval Research, Defense Advanced Research Projects Agency, and National Institute of Health.

Human Language Technology Research Institute

Established in 2002, the Human Language Technology Research Institute (HLTRI) is part of the Erik Jonsson School of Engineering and Computer Science. HLTRI's main goal is to stimulate and foster research in the area of Human Language Technology,

comprising Natural Language Processing (NLP) and Automatic Speech Recognition and Synthesis, and to increase the visibility of UT Dallas as a place of excellence in HLT research. At HLTRI, we are set to build a first class research group by tackling some of the most important research problems in Human Language Technology. The Institute provides a rich environment in which graduate students learn and work with faculty and technical staff on supported research for both funding agencies as well as companies.

HLTRI faculty include: Dr. Sanda Harabagiu, Director, Dr. Dan Moldovan, Co-Director, Dr. Richard Golden, Dr. John Hansen, Dr. Vasileios Hatzivassiloglou, Dr. Latifur Khan, Dr. Philip Loizou, Dr. Yang Liu, and Dr. Vincent Ng. HLTRI faculty, staff and research assistants work within the following centers:

Center for Basic Research in Natural Language Processing
Center for Emerging Natural Language Applications
Center for Search Engines and Web Technologies
Center for Text Mining
InterVoice Center for Conversational Technologies

3.3. Research Funding

The faculty has actively submitted proposals to federal and state agencies. Faculty research has been funded by the National Science Foundation, Department of Energy, Air Force Office of Scientific Research, DARPA, Army Research Office, Department of Defense, Environmental Protection Agency, NASA, Department of Education, Texas Advanced Research Program, Texas Advanced Technology Program. Several faculty also obtained funding from companies such as Texas Instruments, Raytheon, Alcatel (now Alcatel-Lucent), Avaya Research Labs, InterVoice, Rockwell Collins, Cisco, and Microsoft. (See Appendix III for data on the faculty research expenditure in the last 5 years, and Appendix IV for faculty grants). To sustain a large Ph.D. program, the Department has to significantly increase its funding level in the future.

3.4. Faculty Teaching Load and Class Size

Each tenured/tenure-track faculty member is required to teach 4 organized courses per academic year. However, faculty members who are actively supervising PhD. Students can reduce their course load by 1 course per year. Faculty members with administrative duties (Department Head, Associate Heads) teach 2 courses per year (1 per semester). Faculty can buy out at most one course per year to reduce their teaching load to 1+1.

During the academic year 05-06 the average enrollment in an undergraduate section is 35 and it is about 30 per section at the graduate level. The faculty also has the opportunities to teach seminar courses (7000 level courses) to attract Ph.D. students to their research. Enrollment in a 7000 level section is typically around 10.

3.5. Professional Activities

Besides its dedication to research and education, the Department of Computer Science engages in several activities that reach out beyond the University community. The faculty is extremely active in serving on editorial boards of numerous major journals in their fields. There are more than 40 editorial board memberships by our faculty (see Appendix I). The faculty also actively participates in chairing and organizing international conferences. In addition, they have more than 140 memberships on technical program committees of major international conferences or symposia or workshops in their fields (see Appendix I)

The Department has been organizing a very successful distinguished lecturer series attended by students, faculty from UT Dallas and other area universities as well as professionals from local companies (see Appendix V for the list of distinguished speakers in academic years 04-05 and 05-06).

Faculty also invites colleagues in their field to give lectures on their research in our regular seminar series. The seminars are open to the public and advanced announcements are widely disseminated.

3.6. Faculty Recruitment

The Department has been successful in hiring new faculty in recent years. New faculty who joined the Department in the last three years include: Dr. Bhavani Thuraisingham (Security, Professor), Dr. Ding-Zhu Du (Theory, Professor), Dr. Vasileios Hatzivassiloglou (NLP, Associate Professor), Dr. Murat Kantarcioglu (Security, Assistant Professor), Dr. Yang Liu, (Speech Processing, Assistant Professor), Dr. Ying Liu (Bioinformatics, Assistant Professor), Dr. Vincent Ng (NLP, Assistant Professor), Dr. Kevin Hamlen (Language Security, Assistant Professor), Dr. Xiaohu Guo (Computer Graphics, Assistant Professor). (See Appendix VI for information on the new faculty.)

The Department will continue to grow its faculty size to 50 (See Appendix VII for data on faculty growth). Current faculty searches include an endowed chair in Software Engineering, a senior level position in Bioinformatics, and a senior level position in Intelligent Systems. There is also an open search for truly exceptional senior candidates in all areas who have outstanding research accomplishments and excellent funding records. (See Appendix VIII for current faculty search announcements.)

4. Computer Science Graduate Curriculum

4.1. Objectives

The Graduate Program in Computer Science provides intensive preparation in the design, programming, theory, and applications of computers. The Department of Computer Science offers courses of study leading to the M.S. in Computer Science, the M.S. in Computer Science with Major in Software Engineering, Ph.D. degree in Computer Science, and the PhD degree in Software Engineering. Training is provided for both academically oriented students and students with professional goals in the many business, industrial or governmental occupations requiring advanced knowledge of computer theory and technology. Courses and research are offered in a variety of subfields of computer science, including operating systems, computer architecture, computer graphics, pattern recognition, automata theory, combinatorics, artificial intelligence, natural language processing, speech processing, bioinformatics and computational biology, information security, database design, computer networks, programming languages, software systems, analysis of algorithms, computational complexity, software engineering, software testing, software reliability, scheduling, visualization, computer graphics, fault-tolerant computing, parallel processing, telecommunications networks, telecommunications software, performance of systems, VLSI, computational geometry, and design automation.

A comprehensive program of evening courses is offered which enables part-time students to earn the master's degree or to select individual courses of interest.

In addition to the Computer Science faculty, there are individuals who are involved in computer related work in many other areas of the university, including the several physical and social sciences and in various areas of business and management. Students majoring in computer science with interest in these important application areas have the opportunity to consult and work with talented faculty from a wide range of disciplines. The department actively participates in a number of interdisciplinary degree programs which include MS and Ph.D. in Computer Engineering, MS and Ph.D. in Telecommunications Engineering, and Ph.D. in Geospatial Information Sciences.

4.2. M.S. Program

M.S. Admission Requirements

The student entering the Computer Science M.S. program should have an undergraduate preparation equivalent to a baccalaureate in a quantitative science, including calculus and linear algebra. However, special arrangements (requiring more than the minimal number of hours) can be made for students with good undergraduate preparation in other fields.

Minimum requirements are:

- Bachelor's degree which includes 2 semesters of calculus and 1 semester of linear algebra.
- GPA of at least 3.0 (last 60 hours). GPA in quantitative courses of at least 3.3.
- GRE scores of at least 1200 (verbal + quantitative) or 1800 (verbal + quantitative + analytical) is advisable based on our experience with student success in the program.

Students lacking undergraduate preparation in Computer Science must complete the courses listed below. At the discretion of the graduate adviser, a diagnostic exam may be required. The required prerequisite courses common to all Master's students are:

CS 5301 Advanced Professional and Technical Communication
CS 5303 Computer Science I
CS 5330 Computer Science II
CS 5333 Discrete Structures
CS 5343 Algorithm Analysis and Data Structures
CS 5348 Operating Systems Concepts

Substitution of CS 5303, 5330 by professional experience will be considered. Additional prerequisite courses required for the various degree plans are:

For the Traditional Computer Science and Bioinformatics Tracks:

CS 5349 Automata Theory
CS 5390 Computer Networks

For the Networks and Telecommunications Track:

CS 3341 Probability and Statistics
CS 5390 Computer Networks

For the Intelligent Systems Track:

CS 5349 Automata Theory

For the Major in Software Engineering:

CS/SE 5354 Software Engineering

M.S. Degree Requirements

The student may choose a thesis plan or a non-thesis plan. The thesis plan requires a minimum of 27 hours of courses, plus completion of an approved thesis (six thesis hours). This thesis is directed by a supervising professor and must be approved by the head of the Department of Computer Science. The non-thesis plan also requires a minimum of 33 hours of courses.

By a judicious planning of courses chosen from the computer science curriculum, supervised and approved by the graduate adviser, students may pursue the M.S. degree in Computer Science while emphasizing specific areas of the discipline. Students may also

choose to receive the M.S. degree in Computer Science with a Major in Software Engineering. Because of the rapidly changing nature of the computer science discipline, the specific courses required may change by the time of the student's admission. A listing of the required courses will be specified by the student's adviser. Specific degree requirements follow.

Core Requirements (15 hours)

Students are required to complete one of the following:

Traditional Computer Science Track

CS 6363 Design & Analysis of Computer Algorithms

CS 6378 Advanced Operating Systems

CS 6390 Advanced Computer Networks

Two of the following three courses:

CS 6353 Compiler Construction

CS 6360 Database Design

CS 6371 Structure & Design of Programming Languages

Networks and Telecommunications Track

CS 6352 Performance of Computer Systems and Networks

CS 6363 Design & Analysis of Computer Algorithms

CS 6378 Advanced Operating Systems

CS 6385 Algorithmic Aspects of Telecommunication Networks

CS 6390 Advanced Computer Networks

Intelligent Systems Track

CS 6360 Database Design

CS 6363 Design & Analysis of Computer Algorithms

CS 6364 Artificial Intelligence

CS 6375 Machine Learning

CS 6378 Advanced Operating Systems

Bioinformatics Track

CS 6325 Introduction to Bioinformatics

CS 6363 Design & Analysis of Computer Algorithms

CS 6360 Database Design

Two of the following four courses:

CS 6333 Algorithms in Computational Biology

CS 6365 Data and Text Mining for Computational Biology

CS 6372 Computational Systems Biology

CS 6393 Advanced Algorithms in Biology

Major in Software Engineering (M. S. C. S.)

CS/SE 6354 Advanced Software Engineering
CS/SE 6361 Requirements Engineering
CS/SE 6362 Software Architecture and Design
CS/SE 6367 Software Testing, Validation and Verification
CS/SE 6388 Software Project Planning and Management

Students must satisfy the core requirements by either earning a 3.2 minimum grade point average OR by earning a 3.0 minimum grade point average in the five core courses and taking an extra approved elective (beyond the minimum degree requirements of 33 hours) and earning a grade of B or better in this additional elective.

Electives (minimum of 18 hours)

Five [15 credit hours] 6000/7000/8000 level elective CS courses, or six hours of thesis or project courses plus three elective courses [$9 + 6 = 15$ credit hours], with approval of a graduate adviser; a minimum grade point average of 3.0 is required. Courses that are prerequisites to the student's core requirements are especially recommended. Approved electives must be taken to make a minimum of 33 hours.

While the Department of Computer Science offers both the Master of Science in Computer Science and the Master of Science in Computer Science with Major in Software Engineering degrees, students are not permitted to pursue both degrees.

4.3. Doctor of Philosophy Program

The Department of Computer Science offers Ph.D. degrees in Computer Science and in Software Engineering.

Each degree program is tailored to the student. The student must arrange a course program with the guidance and approval of a faculty member chosen as his/her graduate adviser. Adjustments can be made as the student's interests develop and a specific dissertation topic is chosen.

Ph.D. Admission Requirements

A student may be admitted under two possible options. The student must have:

- A Master's degree in computer science or its equivalent, and
- A GPA of at least 3.5 and GRE of at least 1200 (verbal and quantitative) or 1800 (verbal, quantitative, and analytical) is advisable based on our experience with student success in the program; or
- A B.S. in related area that includes two semesters of calculus and linear algebra with
- GPA of at least 3.5 in the last 60 hours, and

- A GRE of at least 1300 (verbal and quantitative) is advisable based on our experience with student success in the program.

Ph.D. Degree Requirements

Core requirements:

The core requirements for the Ph.D. degree in Computer Science are the same as the ones for the M.S. in Computer Science or the M.S. in Computer Science with Major in Software Engineering; the core requirements for the Ph.D. degree in Software Engineering are the same as those for the M.S. in Computer Science with Major in Software Engineering.

- Pass a qualifying examination (See Appendix ? for PhD qualifying exam policy)
- Pass, with a grade of B or better, courses chosen as follows:
 - CS 6382 Theory of Computation; in addition, students pursuing the Ph.D. degree in Software Engineering should take CS/SE 6389 _ Formal Methods and Programming Methodology.
 - Two CS/SE 7000 and above level courses
- Sufficient CS electives for a total of at least 90 hours beyond the baccalaureate degree. At least 9 hours of organized advanced Computer Science electives must be taken at UT Dallas. The student is encouraged to consult with an adviser in choosing electives.

Ph.D. Dissertation

A dissertation is required and must be approved by the graduate program. A student must arrange for a dissertation adviser willing to guide this dissertation. The student must have a dissertation supervising committee that consists of no less than four members of whom at least three must be from the Computer Science faculty. The dissertation may be in computer science exclusively or it may involve considerable work in an area of application.

(See Appendix IX for a complete set of graduate courses descriptions as well as the Department's Ph.D. qualifying examination policy.)

5. Graduate Program Status

5.1. Graduate Students Recruiting

In Fall 2006, administrators of UT Dallas' Erik Jonsson School of Engineering and Computer Science committed resources to a recruiting office comprised of a full time Assistant Dean of Recruitment, an Associate Director, Recruitment Specialist and Software System Specialist.

Targeted groups of potential graduate students include the School's current undergraduate population, employees from local business and industry who already have a bachelor's degree and are seeking an advanced degree for career advancement and/or job security, and other potential candidates from around the world.

Given the fact UT Dallas is arguably one of the most selective public schools in Texas, it stands to reason that the Jonsson School would be interested in advancing the current undergraduate population into its corresponding graduate degree programs. The "Fast Track" Program allows academically qualified seniors to take graduate courses (and graduate with a bachelor's and master's degree in 5 years instead of 6), and the "Get Doc" Program, which adds the financial incentive of a research assistantship.

The "Jonsson Distinguished Research Fellowship" is a tool used to attract candidates from around the world. The GRE Search is used to identify potential candidates, through direct mail, who may qualify for this special award. Recipients are funded by the Jonsson School for up to two years before being absorbed into their supervising professor's research grant.

Active participation in the Jonsson School's Industrial Advisory Board and membership in The North Texas Collegiate Consortium (NTTC) provides an avenue to access potential graduate students employed by local business and industry. The Industrial Advisory Board, whose membership is comprised of Jonsson School faculty and staff along with executives from the North Texas Telecom Corridor, named a Graduate Recruitment Committee at the February, 2007 meeting. NTTC is an association of recruiters from north Texas colleges and universities who assist employers in their efforts to encourage an educated workforce by coordinating their education fair needs with all members of the Consortium. The Jonsson School is represented at select college fairs. The first annual "Erik Jonsson Graduate Recruitment Day" was implemented in February. Potential Get Doc students from UT Dallas and students from the GRE Search were invited to attend. The Summit showcased each of the majors through faculty presentations and lab demonstrations while recruitment personnel provided information regarding financial assistance, housing, and cost of attendance. Partial and full travel scholarships were provided to highly qualified candidates.

In addition, the recruitment staff will coordinate campus visits for individuals including the opportunity to visit with professors and participate in a campus tour. Partial and full

travel awards are possible based on academic potential and distance. Recruitment staff is also available for walk-ins.

Recruitment of graduate students is also carried out through an advertisement in the Peterson's Guide, brochures and the Department's website which is being completely redesigned. Experience shows that the Department's website is a highly effective tool to recruit students. Faculty members also individually contact potential students to attract them to the PhD program. Currently there are around 150 active students (including 25 P/T students) in the PhD program. (See Appendix X for graduate admissions data)

5.2. Graduate Enrollment and Graduation

The history of graduate enrollment and graduation is summarized in Appendix ? The Department has one of the largest M.S programs in the country. The highest M.S. enrollment was in Fall 2001 with almost 800 students. The enrollment declined significantly during the dotcom crash and reached the lowest point in Fall 2005. In Fall 2006 the inflow of new graduate students increased almost 90% compared to Fall 2005. We believe that the graduate enrollment will continue to grow in the near future.

The M.S. degree production reached a peak in academic year 2002-2003 and has declined since. As enrollment picks up, M.S. degree production will rise accordingly.

The Ph.D. enrollment is relatively steady. Our goal is to increase it to 150 full-time students. The Ph.D. degree production has risen rapidly in the last couple of years. In the last calendar year the faculty produced a total of 30 Ph.D. degrees (including a couple of degrees in the interdisciplinary areas of Telecommunications Engineering and Computer Engineering). This outstanding accomplishment certainly places the Department among the top 25 CS departments in the country. (See Appendix XI for data on enrollments and graduation.)

5.3 Graduate Student Support

Almost all Ph.D. students are supported as a teaching assistant or research assistant. Graduate fellowship levels are: \$1950/month for fresh Ph.D. students (Level I), \$2,000/month for students that have passed the M.S. degree (Level II), and \$2,050/month for students who have completed everything except the Ph.D. dissertation. The support levels for research assistants and teaching assistants are the same. In addition, the Department also provides a number of \$1,000 scholarships to M.S. students and unsupported Ph.D. students (if any).

Appendix XII contains data concerning past support levels for TAs and RAs. The current support levels are highly competitive compared to what is being offered by other CS departments.

5.4 Graduate's Employment

The Department doesn't keep track of the placement record of M.S. students. However, anecdotally almost every graduate student receives a job offer(s) right before graduation due to the current high demand for CS graduates. The job creation in the information technology sector is particularly high in the last 2 or 3 years. A large number of students obtained jobs in the Metroplex where numerous high tech companies reside.

The job placement of Ph.D. students is excellent. While a majority of our PhD graduates went to work in the private sector, several of our students have obtained faculty appointments at a number of universities including Clemson, South Dakota State, University of Massachusetts at Amherst, University of Nevada at Las Vegas, Georgia State University etc. Of the 20 Ph.D. students graduated in academic year 2005-2006, some went to work for companies such as Cisco, Microsoft, Veritas; others joined a number of state universities including Wright State University, Oklahoma State University, and North Dakota State University. (See Appendix XIII for a list of 05-06 Ph.D. graduates with their dissertation titles as well as their employment status.)

6. Computing Facilities

The Department has adequate lab facilities for its educational and research programs. There are many labs that are within the Department as well as large general purpose labs that are shared by the EE and CS departments. The CS operated labs are located in the ECSS building, while the EE operated labs are located in the ECSN building. The CS Labs consist of state-of-the-art, high-performance workstations and high-end PCs, all connected via Ethernet with a fiber uplink to provide fast access to the campus networks and the Internet. Nine classrooms and one large auditorium with the latest computer and audio-visual equipment are available.

ECSS 2.103 is a large open lab with over 100 PCs for general use by both EE and CS students. Most projects for the beginning programming classes are done there. Portions can be reserved for specific classes to carry out hands-on instruction. Most software needed for classes are available at this lab including Compilers and Language Development Environments, several tools from Rational, x-SUDS from Telcordia (testing tools), etc. Students also have access to large computer servers that the department owns, and that can be accessed through the workstations in the labs.

Labs in ECSN 3.112, 3.118, 3.120 are shared with Electrical Engineering; they are used to support classes in Digital Systems and Computer Architecture. Circuit design boards and software support are provided. The primary responsibility for maintaining these labs rests with the EE department.

Several other laboratories in the ECSS building are dedicated to instruction and provide advanced environments for specific needs (e.g., UNIX workstations and dual-boot PCs to support CS 3375 and Operating Systems projects, Advanced Software Engineering tools to support senior Software Engineering classes, DSP labs, Labs dedicated to Operating Systems and Networking classes).

The equipment in the labs is rather new since the building is only 4 years old. When the current building was built in 2002, \$600,000 was allocated for buying equipment for the various Labs that were set up. These funds were used to buy the equipment in the Labs described previously. The CS Equipment Committee and the CS technical staff have developed and are implementing plans to upgrade equipment on a 3-4 year staggered cycle. Under this plan, some of the equipment in the labs have recently been replaced.

The general use lab (ECSS 2.103) is open 18 hours a day (the lab is supervised by teaching assistants to prevent theft, vandalism and the availability of the assistants is the only reason the lab is not always open). The other labs in the building are accessible though computer controlled entry and are available anytime to students that are authorized (by virtue of the classes for which they are registered) to use them. UT Dallas provides several remote access options (RNA, Pipeline); wireless network access is available in most buildings and in student housing.

Faculty have up-to-date PCs and/or Sun Workstations in their offices. Most research active faculty members have set up labs that house anywhere from 6 to 12 computers that they use for research. In addition, the department has several large and powerful servers including three SUN V 880 with eight processors each, two 420R dual processor servers, three 280R dual servers, and fifty SUN netras for intensive network programming capabilities. These servers are connected to a storage array consisting of a SUN A3500 with a storage capacity of 800GB.

A comprehensive list of research and teaching labs is shown below:

- Graduate Students Open Lab
- Computer Software Engineering Open Lab
- CS Tutoring Lab
- Embedded Software Center
- Intervice Center for Conversational Technologies (Human Language Technology Research Institute)
- Center for Search Engines and Web Technologies (Human Language Technology Research Institute)
- Center for Text Mining (Human Language Technology Research Institute)
- Center for Basic Research in Natural Language Processing (Human Language Technology Research Institute)
- Center for Emerging Natural Language Applications (Human Language Technology Research Institute)
- Security Analysis and Information Assurance Lab/Cyber Security Center
- Digital Forensics and Emergency Preparedness Institute
- Distributed Systems and Internet Computing Lab
- Applied Logic, Programming-Languages and Systems Lab (ALPS)
- Software and Information Visualization Lab
- DSP and Communications Lab
- Wireless information systems Lab
- Multimedia Distance Learning Lab
- Parallel Computation Lab

- Artificial Intelligence Lab
- CAD and Visualization Lab
- Database Laboratory
- Telecommunications Lab
- Computer Vision and Multimedia Systems Lab
- Telecommunications and SE Lab
- Resource Allocation and Scheduling Lab
- Laboratory of Advanced Computer and Network Architectures
- Advanced Networking and Dependent Systems Laboratory
- Multimedia Systems and Networking Lab
- Software Technology Advanced Research
- Compiler and Architecture Research Lab
- NET Lab - Scalable Network Engineering Techniques Laboratory
- Visual Computing
- Formal Method Lab
- Software Architecture Lab
- Advanced Network Research Lab
- Advanced Computation Lab
- Requirements Engineering Lab
- Virtual Reality and Graphics Lab

The Department of Computer Science employs three technical support staff. They are assisted by several students assigned to them as assistants (or employed on an hourly basis). An additional technical support staff member maintains machines in the Human Language Technology Research Institute (HLTRI) and is supported by external grant funds.

7. Administration & Budget

7.1 Department Administration

The department administration is under the direction of the Department Head with support of two Associate Department Heads. The (8) administrative assistants and secretaries report to him (see Appendix XIV for the department organization chart). The Department Head is responsible for communication between the Dean of the Jonsson School and the faculty and for assuring that University policies and budgetary procedures are met. Faculty teaching duties are assigned by the Department Head. The Department Head is responsible for ensuring that each faculty member is assigned sufficient teaching activities to meet the school's required work load consistent with the faculty member's percent time paid from State funds. The Department Head administers the Department's budgets, and in consultation with faculty appoints the Associate Department Heads, Advisors and departmental committees. Current departmental committees include: Graduate Admissions Committee, Graduate Curriculum Committee, Ph.D. Committee, TA Committee, Annual Review Committee, By-Laws Committee, Equipment Committee, Undergraduate Curriculum Committee, Colloquium Committee, Publicity Committee, and Library Committee,

Advising of M.S. students is conducted by three advisors. The tenured/tenure-track faculty supervises Ph.D. students.

The faculty consists of five groups: Computing (Theory), Networks and Telecom, Intelligent Systems, Computer Systems, and Software Engineering. Each group has a group coordinator that has a two-year term. Group coordinators are elected by groups and meet with the Department Head on important issues such as promotion/tenure and faculty hiring strategies. (See Appendix XIV for information on the departmental group structure.) All important issues are discussed and decided by the whole faculty.

New faculty appointments are handled as follows: a search committee consisting of representatives from the five groups is recommended by the Department Head to the Dean. The committee conducts the search according to University policies, reviews the applicants, and recommends the final list of candidates who are usually invited to campus. The top candidate is then selected by the search committee, approved by the faculty and recommended by the Department Head to the Dean, who in turn sends his recommendation through the Committee on Qualifications to the Provost.

7.2 Academic Budget

The annual State Budget is appropriated in two parts: the Faculty Salary (including teaching assistants and lecturers) budget and the Departmental Operating budget.

The faculty and Senior Lecturer salary, Teaching Assistant and Lecturer budgets for the academic year 2005-06 are \$4,235,302, \$463,584, and \$817,647 respectively. (See Appendix XV for data on tenured/tenure-track faculty salaries.)

The University's funds from the State are derived via a formula based on the number of students credit hours taught multiplied by a factor that depends on the level of credit hour i.e. lower division, upper division, Master's or Ph.D.). and the formula classification of the course (Liberal Arts, Business, Engineering, Science, etc.).

A new Teaching Assistant is compensated with a monthly stipend of \$1,950. In addition a Teaching Assistant can receive a UTD Graduate Studies Scholarship (GSS) that covers full costs for UTD tuition and fees. (In the future, the P.I.'s will have to pay for their RAs' tuition through research grants). Currently the Department supports 45 TA's. Almost all of them are admitted to the Ph.D. program.

The fund for the departmental operations is called the Departmental Operating budget. It amounted to \$160,000 in the current fiscal year. This amount is used for things such as telephone charges, computer connections, office machine rental, colloquium speakers, faculty recruiting, teaching equipment, travel and capital equipment purchase. The department also has \$54,000 from the infrastructure funds allocated by the Dean for labs maintenance and faculty/staff computer upgrades.

Faculty Memberships on Editorial Boards and Conference Program Committees

F. Bastani

Editorial Board Member

- International Journal of Artificial Intelligence Tools
- IEEE Transactions on Knowledge and Data Engineering
- International Journal of Knowledge and Information Systems
- International Journal on Artificial Intelligence Tools
- Springer-Verlag book series on Knowledge and Information Management

Conference Program Committee Member

- IEEE Symposium on Service-Oriented System Engineering
- 2006 and 2007 IEEE Intl. Conf. on e-Business Engineering
- IEEE International Workshop on Collaborative Computing, Integration, and Assurance
- Intl. Symp. On Autonomous Decentralized Systems
- Intl. Conference on Distributed Computing Systems
- Intl. Conference on Data Engineering Symposium on Reliable Distributed Systems
- Intl. Conference on Tools for AI
- IEEE Intl. Symposium on Software Reliability Engineering
- Intl. Work on Evaluation and Evolution of Component Composition
- Intl. Conference on Stabilization, Safety, and Security of Distributed Systems
- IEEE Intl. Conference on e-Business Engineering
- The Software Track at the 22nd Ann. ACM Symp. On Applied Computing (ACM SAC)

S. Berez

Conference Program Committee Member

- The 17th International Symposium on Algorithms and Computation, ISAAC 2006.
- The International Conference on Computational Science and its Applications, ICCSA 2006.
- The 3rd International Symposium on Voronoi Diagrams in Science and Engineering, ISVD 2006.

J. Cangussu

Conference Program Committee Member

- Workshop on Software Cybernetics (COMPSAC 2006)
- IASTED Software Engineering Conference (SE 2006)
- ACM SAC 06 - (SE) Software Engineering Track
- Communications & Inf. Security Tech. Committee (CISITC)- IEEE Communications Society.
- International Conference on Software Engineering and Knowledge Engineering (SEKE 2006)
- International Conference on Software Engineering Advances ICSEA 2006
- IEEE Globecom 2006 - Network Security Systems Symposium
- Brazilian Symposium on Software Engineering

L. Chung

Editorial Board Member

- Editorial Board Member, Requirements Engineering, International Journal, 1998-present.
- Journal of Software Engineering and Applications (JSEA), 2007.

L. Chung - continued

Conference Program Committee Member

- 5th Intl. Workshop on System/Software Architectures (IWSSA'06), June, 2006
- UKC Information and Technology Symposium (UKC-ICTS'06), August 2006
- KOCSEA Technical Symposium, December, 2006.
- 2nd Intl. Working Conference on Evaluation of Novel Approaches to Software Engineering (BNASE 2006)
- 11th Systems Engineering Test & Evaluation Conference (SETE 2006)
- IRMA: Software Engineering Technologies Track, Washington, May, 2006;
- IEEE/ACIS Intl. Conf. on Software Engineering Research and Application (SERA '06),
- 5th IEEE/ACIS Intl. Conference on Computer and Information Science (ICIS 2006),
- 1st IEEE/ACIS Intl. Workshop on Component-Based Software Engineering, Software Architecture and Reuse (COMSAR06)
- 7th Intl. International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2006), May 2006
- Asian Pacific Software Engineering Conference (APSEC'06), Baltic DB&IS.

J. Cobb

Editorial Board Member

Journal of High Speed Networks, IOS Press

Conference Program Committee Member

- Eighth International Symposium on Stabilization, Safety, and Security of Distributed Systems
- International Conference on AD-HOC Networks & Wireless (ADHOCNOW)
- Autonomous Distributed Systems and Networks
- GLOBECOM WASNet
- IEEE International Conference on Network Protocols
- IEEE International Performance, Computing and Communications Conference
- Jorge A. Cobb 11
- Local Computer Networks Conference
- IASTED Principles of Distributed Computing and Networks

K. Cooper

Editorial Board Member

- Serving on the Editorial Board of International Journal of Computer and Information Science

Conference Program Committee Member

- 18th International Conference on Software Engineering and Knowledge Engineering (SEKE 2006)
- 7th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing
- International Workshop on Systems and Software Architecture (IWSSA 2006)
- International Conference on Software Engineering Advances (ICSEA 2006)
- International Conference on Software Engineering Research, Management & Applications Advances (SERA 2006)

O. Daescu

Conference Program Committee Member

- International Workshop on Computational Geometry and Applications, 2002-2006.
- International Conference on Wireless and Mobile Communications, 2006.
- International Multi-Conference on Computing in the Global Information Technology, 2006.
- International Symposium on Voronoi Diagrams, 2006-2007.

G. Dattatreya

Conference Program Committee Member

- 10th WSEAS International Conference on Applied Mathematics and 5th WSEAS international Conference on Circuits, Systems, Electronics, Control, and Signal Processing, Dallas, TX November 2006.

J. Dong

Editorial Board Member

- Journal of Software Engineering, 2006

Conference Program Committee Member

- 18th International Conference on Software Engineering and Knowledge Engineering (SEKE), San Francisco Bay, July 2006
- International Conference on Software Engineering Research and Practice (SERP), USA, June 2006.
- 7th International Conference on Internet Computing (ICOMP'06), June 2006
- International Conference on Visual Languages and Computing (VLC), USA, Sept. 2006
- The Third International Workshop on Software Development Methodologies of Distributed Systems, Shanghai, China, May 2006

D. Du

Editorial Board Member

- Journal of Combinatorial Optimization, Springer, since 1997
- Theoretical Computer Science, Elsevier since 1998
- Internet Mathematics, A.K. Peters LTD since 2003
- Graphs and Combinatorics Springer-Verlag since 1996
- Journal of Global Optimization, Springer, since 1995
- Asian Journal of Mathematics, since 1997
- Pacific Journal of Operations Research, since 2003
- Soiet. China, since 2003
- Journal of Information Science and Engineering, Academia Sinica, Taipei, since 2003
- Journal of Computer Science and Technology, Science Publisher, Beijing, since 2003
- International Journal of Security and Networking, Inderscience Publishers, since 2005
- International Journal of Sensor Networks, Inderscience Publishers, since 2005
- Optimization Letters, Springer, since 2005
- International Journal of Telemedicine and Applications, Inderscience Publishers, since 2006
- Book Series of Combinatorial Optimization, Springer, since 1999
- Book Series of Networks Theory and Applications, Springer, since 2000
- Book Series on Nonconvex Optimization and Its Applications, Springer, since 1996

D. Du - continued

Conference Program Committee Member

- The 25th Conference on Computer Communications (IEEE INFOCOM '06), April 2006, Barcelona, Spain.
- 25th IEEE International Performance Computing and Communication Conference (IPCCC'06), April 2006, Phoenix, Arizona, USA.
- International Symposium on Combinatorics, Algorithms, Probabilistic and Experimental Methodologies (ESCAPE 2007), April 2007, Zhenjiang University, Hangzhou, China.
- The Eighth Asian Symposium on Computer Mathematics (ASCM 2007), National University of Singapore, Singapore, Dec. 2007.
- International Conference on Wireless Algorithms, Systems and Applications (WASA).
- The 1st International Conference on Combinatorial Optimization and Applications (COCO 2007), August 12-15, Xi'an, China.
- International Symposium on Algorithms and Computation since 1994.

A. Faragó

Editorial Board Member

- Journal Wireless Networks
- Journal on Communications

G. Gupta

Editorial Board Member

- Theory and Practice of Logic Programming, Cambridge University Press
- European Association for Programming Language and Systems
- Association for Logic Programming

Conference Program Committee Member

- Workshop on Software Verification and Validation
- Implementation of Constraint and Logic Programming Systems
- Logic Programming Environment
- Information Systems Security Education
- Automated Specifications and Verification of Web Systems
- Practical Applications of Declarative of Web Systems

S. Harabagiu

Conference Program Committee Member

- Twenty-Ninth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2006)
- Twenty-First National Conference on Artificial Intelligence (AAAI-2006)
- 2006 Human Language Technology Conference/North American chapter of the Association for Computational Linguistics (HLT/NAACL-2006)
- 11th Conference of the European Chapter of the Association for Computational Linguistics (EACL-2006)

D. Huynh

Editorial Board Member
Advisory Board, Journal of Automata, Languages, and Combinatorics

J. Jue

Editorial Board Member
- IEEE Communications Surveys & Tutorials

Conference Program Committee Member

- IEEE Globecom, ICC, OptiComm, CreateNet Broadnets

M. Kantarcioglu

Conference Program Committee Member

- International Workshop on Privacy Aspects of Data Mining
- IEEE International Conference on Data Mining
- International Conference on Data Warehousing and Knowledge Discovery
- European Conference on Principles of Data Mining and Knowledge Discovery

L. Khan

Editorial Board Member

- Computer Standards and Interface by Elsevier Publishing, North Holland

Conference Program Committee Member

- Intl. Conf. on Computers and Information Technology
- European Conf. on Machine Learning
- European Conf. on Principles and Practice of Knowledge Discovery in Databases
- IEEE Intl. Conf. on Data Mining
- Knowledge Discovery and Data Mining
- Multimedia Data Mining

Yang Liu

Editorial Board Member

- NAAACL-HLT - Joint Human Language Technology Conf.
- North American Chapter of the Association for Computational Linguistics

Ying Liu

Conference Program Committee Member

- The IASTED Intl. Conf. on Computations and Systems Biology
- Granular Computing
- Intl. Conf. on Data Engineering
- Data Mining in Bioinformatics with Sixth

Rym Mili

Conference Program / Committee Member
- Software Engineering and Knowledge Engineering
- Agent-oriented Software Development Methodology

Neeraj Mittal

Conference Program Committee Member
- IEEE Intl. Workshop on Assurance in Distributed Systems and Networks

V. Ng

Conference Program Committee Member

- Intl. Conference on Computational Linguistics
- Joint Human Language Technology Conference
- Empirical Methods in Natural Language processing

S. Ntafos

Conference Program Committee Member

- ASSET
- COMPSAC

B. Prabhakaran

Editorial Board Member

- Multimedia Tools and Applications journal, Springer Publishers.

Conference Program Committee Member

- ACM Multimedia

B. Raghavachari

Conference Program Committee Member

- Dial M for Mobility
- Association for Computing Machinery

K. Sarac

Conference Program Committee Member

- IEEE International Conference on Network Protocols 2006 (ICNP), Santa Barbara, CA
- IEEE Communications Society/CreteNet SecureComm, Workshop on Enterprise Network Security, Baltimore, MD, USA
- The Mexican International Conference on Computer Science (ENC 2006), San Luis Potosi, Mexico.
- International Conference on Wireless Algorithms, Systems, and Applications (WASA 2006), Xi'an, China.
- IEEE International Conference on Pervasive Services 2006 (ICPS), Lyon, France.

K. Sarac - continued

Conference Program Committee Member

- The Workshop on End-to-End Monitoring Techniques and Services (E2EMON), Vancouver, Canada, 2006.
- IEEE International Conference on Communication - General Symposium (ICC'06 General Symposium), Istanbul, Turkey.
- International Conference on Computational Science (ICCS), Workshop of Evolution toward Next Generation Internet (ENGI), University of Reading, UK 2006.

E. Sha

Editorial Board Member

- Journal of Embedded Computing
- Journal of VLSI Signal Processing Systems

Conference Program Committee Member

- Program Committee Chair of the 2006 IFIP International Conference on Embedded And Ubiquitous Computing (EUC 2006), Seoul, Korea, August 2006.
- Program Committee of the 18th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2006), Dallas, Texas, November 2006.
- Program Committee of 2006 IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+HSSS 2006), Seoul, Korea, October 2006.
- Program Committee of the 5th bi-annual IFIP Conference on Distributed and Parallel Embedded Systems (DIPES 2006), Braga, Portugal, October 2006.
- Program Committee of the IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC2006), Taichung, Taiwan, June 2006.
- Program Committee of the 8th Asia Pacific Web Conference (APWeb), Harbin, China, January 2006.

H. Sudborough

Editorial Board Member

- Journal on Interconnection Networks (JOIN)
- Journal Computing and Informatics

H. Schweitzer

Editorial Board Member

- Journal of Machine Vision and Applications

B. Thuraisingham

Editorial Board Member

- Journal of Distributed Sensor Networks
- Journal of Semantic Web
- International Journal of Information Security
- Journal of Information Security and Privacy

B. Thuraisingham - continued

Conference Program Committee Member

- Privacy in Data Mining
- IFIP Database Security Conference
- IEEE Transactions on Dependable and Secure Computing
- ACM Transactions on Information Systems Security

S. Venkatesan

Conference Program Committee Member

- Networks 2000
- Parallel and Distributed Computing Systems

Y. Wang

Editorial Board Member

- Journal of Circuits, Signals, and Systems.
- IEEE Transactions on VLSI
- IEEE Transactions on Circuits and Systems II
- Journal of Circuits, Signals, and Systems
- Journal of Applied Signal Processing
- International Journal of Parallel and Distributed Systems Networks

E. Wong

Conference Program Committee Member

- IEEE International Symposium on Software Reliability Engineering (ISSRE 2006)
- IEEE International Computer Software and Applications Conference (COMPSAC 2006)
- International Conference on Computer Safety, Reliability and Security (SAFECOMP 2006)
- IEEE International Conference on Information Reuse and Integration (IRI 2006)
- International Conference on Software Engineering and Knowledge Engineering (SEKE 2006)
- ACM Annual Symposium on Applied Computing (ACM SAC - SE Track 2006)
- International Conference on Quality Software (QSIC 2006)
- ISSAT International Conference on Reliability and Quality in Design (2006)
- Brazilian Symposium on Software Engineering (SBES 2006)
- International Workshop on Software Quality Assurance (SOQUA 2006)
- International Workshop on Automation of Software Test (AST'06)
- International Workshop on Random Testing (RT 2006)

W. Wu

Editorial Board Member

- International Journal of bioinformatics Research and Applications
- International Journal of Knowledge and Information Systems

Conference Program Committee Member

- IEEE Intl. Conf. on Machine Learning and Applications
- International Wireless Communications and Mobile Computing Conference
- Research Challenges in Security and Privacy for Mobile and Wireless Networks

I. Yen

Editorial Board Member

- International Journal on Artificial Intelligence Tools.

Conference Program Committee Member

- IEEE International Conf. on Sensor Networks, Ubiquitous, and Trustworthy Computing
- IEEE International Symposium on Object and component-oriented Real-time distributed Computing
- IEEE International Workshop on Service-Oriented System Engineering
- Embedded Systems: Applications, Solutions, and Techniques Track in ACM SAC

S.Q. Zheng

Editorial Board Member

- Journal of VLSI Design.
- International Journal of High Performance Computing and Networking
- International Journal of Parallel, Emergent and Distributed Systems.

Conference Program Committee Member

- International Conf. on Computer Communication and Networks (ICCCN)
- International Conf. on Information Technology
- Symposium on Advanced Technologies & Protocols for Optical Networks, Globecom
- International Conf. on Communications in Computing
- International Conf. on Parallel and Distributed Computing Systems
- International Conf. on Computational and System Biology

2006 Journal and Conference Publications

F. Bastani

- W. Hao, J. Fu, J. He, I.-L. Yen, F.B. Bastani, I.-R. Chen, "Extending proxy caching capability: Issues and performance," *World Wide Web Journal*, Vol. 9, No. 3, October 2006, pp. 253-275.
- T. Gao, H. Ma, I.-L. Yen, L. Khan, and F.B. Bastani, "A repository for component-based embedded software development," *International Journal of Software Engineering and Knowledge Engineering (IJSKE)*, Vol. 16, No. 4, Aug. 2006, pp. 523-552.
- M. Tu, P. Li, L. Xiao, I.-L. Yen, F.B. Bastani, "Replica placement algorithms for mobile transaction systems," *IEEE Transactions on Knowledge and Data Engineering*, Vol. 18, No. 7, July 2006, pp. 954-970.
- D. Wang, F.B. Bastani, and I.-L. Yen, "Development of high-assurance process-control systems based on independently developable end-user assessable logical (IDEAL) aspects," *Proc. of 2006 C.V. Ramamoorthy Workshop on Advances in Computer Science and Eng.*, Berkeley, CA, May 2006, pp. 285-317.
- V.U.B. Challagulla, F.B. Bastani and I.-L. Yen, "A unified framework for defect data analysis using the MBR technique," *Proc. 18th IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI-2006)*, Arlington, VA, Nov. 2006, pp. 39-46.
- Y. Zhang, J. Fu, I.-L. Yen, F.B. Bastani, A.T. Tai, S. Chau, F. Vatan and A. Fijany, "QoS Adaptive ISHM Systems," *Proc. 18th IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI-2006)*, Arlington, VA, Nov. 2006, pp. 47-54.
- J. Fu, F.B. Bastani, and I.-L. Yen, "Automated AI planning and code pattern based code synthesis," *Proc. 18th IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI-2006)*, Arlington, VA, Nov. 2006, pp. 540-546.
- G. Padilla, F.B. Bastani, C. Montes de Oca, M.A. Serrano, "Instantiation semantics for Message Sequence Charts," *Proc. 7th Mexican International Conference on Computer Science (ENC'06)* San Luis Potosi, Mexico, Sept. 2006, pp. 191-199.
- T. Gao, H. Ma, I.-L. Yen, L. Khan, and F.B. Bastani, "A repository for component-based embedded software development," *International Journal of Software Engineering and Knowledge Engineering (IJSKE)*, Vol. 16, No. 4, Aug. 2006, pp. 523-552.
- N. Shah, F.B. Bastani, I.-L. Yen, "A Real-Time Scheduling Based Framework for Traffic Coordination Systems," *IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTWC2006)*, Taichung, Taiwan, June 5-7, 2006, pp. 321-325.
- J. Liu, J. Fu, Y. Zhang, I.-L. Yen, F.B. Bastani, A. Tai, and S. Chau, "Deductive glue code synthesis for embedded software systems based on code patterns," *Proc. 9th IEEE Intl. Symp. on Object and component-oriented Real-time distributed Computing (ISORC-2006)*, Gyeongju, Korea, Apr. 2006, pp. 109-116.

F. Bastani - continued

- F.B. Bastani, "Development of high-assurance distributed real-time embedded systems," *MetroCon-2006*, Arlington, TX, Oct. 4, 2006.
- F.B. Bastani, "High-confidence verification and validation of distributed real-time embedded systems," *AHPCRC - A Multidisciplinary Workshop on Verification and Validation*, Aberdeen, MD, Oct. 5-6, 2006, p. 13.
- S. Berez**
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H. Sudborough

- "A Fast Algorithm for Sorting by Short Swaps" (with Sherry Fong), Computational and Systems Biology (CASB 2006), November 2006.
- "Efficient Algorithms for Batch Re-keying Operations in Secure Multicast", (with M. H. Heydari, L. Morales), *Proc. of the 39th Hawaii International Conference on System Sciences (HICSS-39)*, January, 2006.
- "An Improved Upper Bound for the Pancake Problem", Invited Presentation, Tokyo University of Agriculture and Technology, July 28, 2006.
- "An Improved Upper Bound for the Pancake Problem", Invited Presentation, Kyoto University, July 26, 2006.

H. Sudborough - continued

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H. Schweitzer

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B. Thuraisingham

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B. Thuraisingham - continued

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S. Venkatesan

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Y. Wang

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E. Wong

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W. E. Wong, J. Zhao, and V. Chan, "Applying Statistical Methodology to Optimize and Simplify Software Metric Models with Missing Data," in *Proceedings of The 21st ACM Symposium on Applied Computing (ACM SAC 06)*, Dijon, France, April 2006.

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F. Belli, C. J. Budnik and W. E. Wong, "Basic Operations for Generating Behavioral Mutants," in *Proceedings of the 2nd Workshop on Mutation Analysis (Mutation 06)*, Raleigh, North Carolina, November 2006.

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K. Y. Cai, W. E. Wong, H. Hu, and C. H. Jiang, "Software Testing with Cost Constraints: a Controlled Markov Chain-based Approach," submitted to the *Computer Journal*

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J. Dong, S. Yang, Y. Sun, and W. E. Wong, "Design Pattern Evolutions in QVT," submitted to the *Journal of Systems and Software*

D. Xu and W. E. Wong, "Testing Aspect-Oriented Programs with UML Design Models," submitted to the *International Journal of Software Engineering and Knowledge Engineering*

V. Chan, W. E. Wong, T. F. Xie, "Application of a Statistical Methodology to Simplify Software Quality Metric Models Constructed Using Incomplete Data Samples," submitted to the *International Journal of Software Engineering and Knowledge Engineering*

W. E. Wong and Y. Lei, "Reachability Graph-based Test Sequence Generation for Concurrent Programs," submitted to the *International Journal of Software Engineering and Knowledge Engineering*

W. Wu

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Localized Outlying and Boundary Data Detection in Sensor Networks, Weili Wu, Xiuzhen Cheng, Min Ding, Kai Xing, and Ping Deng, accepted by *IEEE Transactions on Knowledge and Data Engineering(TKDE)*.

W. Wu - continued

Decoding Algorithms in Pooling Designs with Inhibitors and Error-Tolerance, Ping Deng, David MacCallum, My T. Thai, and Weili Wu, accepted by International Journal of Bioinformatics Research and Applications (IJBRA).

Non-unique Probe Selection and Group Testing, Feng Wang, Hongwei Du, Xiaohua Jia, Ping Deng, and Weili Wu, accepted by Theoretical Computer Science.

Coverage Breach Problems in Bandwidth Constrained Sensor Networks, M. X. Cheng, L. Ruan, W. Wu, accepted by ACM Transactions on Sensor Networks.

Energy-efficient Broadcast and Multicast Routing in Multihop Ad Hoc Wireless Networks, Xiaoyan Cheng, Jianhua Sun, Manki Min, Yingshu Li and Weili Wu, accepted by Wireless Communications and Mobile Computing (WCMC), Vol 6(2): 213-223 (2006).

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Construction of d(H)-disjunct matrix for group testing in hypergraphs, Hong Gao, F. K. Hwang, My T. Thai, Weili Wu, Tateb Znati, Journal of Combinatorial Optimization, Vol 12(3): 297-301 (2006).

Improving construction of connected dominating set with Steiner trees in wireless sensor networks, Manki Min, Xiao Huang, Scott Huang and Weili Wu, Journal of Global Optimization, Vol 35(1): 111-119 (2006).

I. Yen

"QoS adaptive ISHM systems," Yansheng Zhang, Jichen Fu, I-Ling Yen, Farokh B. Bastani, Ann T. Tai, Savio Chau, Farokh Vatan, Amir Fijany, IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI), Arlington, VA, Nov. 2006, pp. 47-54.

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I. Yen - continued

"Automated AI planning and code pattern based code synthesis," Jicheng Fu, Farokh Bastani, I-Ling Yen, IEEE Int'l Conf. on Tools with Artificial Intelligence (ICTAI), Arlington, VA, Nov 2006, pp. 540-546.

"A unified framework for defect data analysis using the MBR technique," Venkata U. B. Challagulla, Farokh B. Bastani, I-Ling Yen, IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI), Arlington, VA, Nov. 2006, pp. 39-46.

"Deductive glue code synthesis for embedded software systems based on code patterns," Jian Liu, Jicheng Fu, Yansheng Zhang, Farokh Bastani, I-Ling Yen, Ann Tai, Savio Chau, IEEE Int'l Symposium on Object and component-oriented Real-time distributed Computing (ISORC), Gyeongju, Korea, April 2006.

"A visualization model for Web sitenaps," Quang Vinh Nguyen, Mao Lin Huang, Kang Zhang, I-Ling Yen, IEEE Conf. on Computer Graphics, Imaging and Visualization (CGIV 2006), Sydney, Australia, July 2006, pp. 12-17.

"A real-time scheduling based framework for traffic coordination systems," Nirav Shah, Farokh B. Bastani, I-Ling Yen, IEEE Int'l Conf on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC), Taiwan, June 2006, pp. 321-325.

"A software enhancement system for embedded software development," Jia Zhou, Kendra Cooper, I-Ling Yen, John Lim, Raymond Paul, IEEE Int'l Symposium on Object and component-oriented Real-time distributed Computing (ISORC), Gyeongju, Korea, April 2006.

K. Zhang

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K. Zhang, *Visual Languages and Applications*, Springer-Verlag, ISBN-10: 0-387-29813-4 & ISBN-13: 978-0-387-29813-9, April 2007, 246 pages.

K. Zhang, J. Kong, and J. Cao, *Visual Software Engineering*, to appear in B. Wah (Ed.) *Encyclopedia of Computer Science and Engineering*, Wiley & Sons, 2006.

S.Q. Zheng

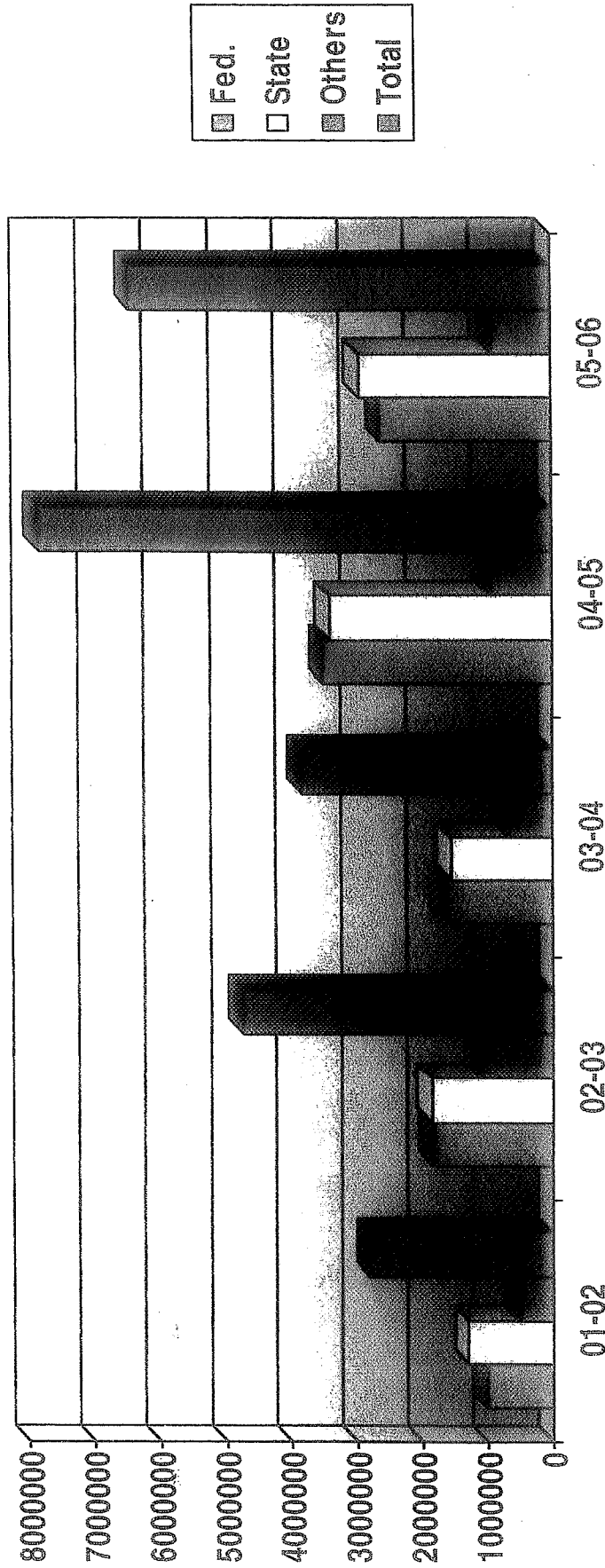
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S.Q. Zheng - continued

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- M. Yang and S.Q. Zheng, Efficient Scheduling for SDMG CIOQ Switches, *IEICE Transactions on Communications*, 2006.
- B. Yang and S.Q. Zheng, Finding Min-Sum Disjoint Shortest Paths from a Single Source to All Pairs of Destinations, *Theory and Applications of Models of Computation, Lecture Notes in Computer Science*, 2006.
- S.Q. Zheng and A. Gumaste, SMART: An Optical Infrastructure for Future Internet, Invited Paper, *Proceedings of the 3rd International Conference on Broadband Communications, Networks, and Systems*, 2006.
- S. Q. Zheng, A. Gumaste and H. Shen, A Rearrangeable Nonblocking Multi-log₂ N Multicast Switching Network, *Proceedings of 2006 IEEE GLOBECOM Conference*, 2006.
- S.Q. Zheng, A. Gumaste and E. Lu, A Practical Fast Parallel Routing Architecture for Close Networks, *Proceedings of the 2nd ACM/IEEE Symposium on Architectures for Networking and Communications Systems*, 2006.

Faculty Research Expenditure



Fed	1,007,000	1,808,000	1,624,000	3,478,000	2,594,000
State	1,288,000	1,850,000	1,533,000	3,387,000	2,918,000
Others	497,000	1,076,000	657,000	931,000	887,000
Total	2,792,000	4,734,000	3,814,000	7,796,000	6,399,000

Current Research Grants

F. Bastani

Received:

End-to-End Dependability Assurance for Command-and-Control Systems, I.-L. Yen (PI), F.B. Bastani (Co-PI), and J. Dong (Co-PI), Department of Defense SPAWAR/NISTP (subcontract to Independent Engineering, Inc.), May 1, 2005 - May 31, 2006 (extended to Sep. 30, 2006), \$44,058.

Component-Based QoS-Driven Synthesis of Embedded Software, I.-L. Yen (PI), F.B. Bastani (Co-PI), and K. Cooper (Co-PI), NASA STTR, (subcontract to IA Tech, Inc.), May 1, 2005 - Aug. 31, 2006, \$100,000 (\$28,000 for UTD).

O. Daescu

Weighted Region Problems: Theory and Algorithms, PI: Ovidiu Daescu, Funding Organization: NSF, Dates: September 15, 2006 - August 31, 2009, Award Amount: \$239,996

Outlier Identification and Handling in Computational Geometry Problems, PI: Ovidiu Daescu, Co-PI: Robert Serfling, Funding Organization: NSF, Dates: August 15, 2004 - July 31, 2006 Award Amount: \$99,972

Resources for Research in Scalable Parallel Computing and Networking Simulation, PI: Gopal Gupta, Co-PI: Ovidiu Daescu and Ravi Prakash, Funding Organization: NSF, Dates: September 15, 2001 - February 28, 2006, Award Amount: \$63,330

J. Dong

End-to-End Dependability Assurance for Command-and-Control Systems, I-Ling Yen (PI), Farokh Bastani, and Jing Dong, Department of Defense SPAWAR/NISTP (subcontract to Independent Engineering, Inc.), \$44,058, May 1, 2005 - May 31, 2006

PI, *Clark Undergraduate Student Mentorship Grant*, \$1,000, May 2006 - August 2006.

D. Du

PI, "Collaborative Research: Optimal Search and Optimal Selection", \$169,373 (9/1/2006-8/31/2009), Submitted to National Science Foundation. co-PI, "An Optical Network Infrastructure for Future Internet", \$487,401 (9/1/2006-8/31/2009), submitted to National Science Foundation.

D. Du - continued

Co-PI "Collaborative Research: Development of Effective Gene Selection Algorithm for Microray Data Analysis", \$150,000 (8/1/2006-7/31-2009), received from National Science Foundation.

Co-PI "Special Meeting: Workshop on Future Direction in Numerical Algorithms and Optimization", \$26,000 (10/1/2006-9/30/2007) received from National Science Foundation.

A. Farago

Modeling Networks with Multiple Physical Layers - The Case for Multi-Radio Networks" Principal Investigators: A. Farago and S. Basagni, Northeastern Univ. (Collaborative research) Funding source: National Science Foundation, Total amount granted: \$350,000, Start date: 10/01/2006, End date: 9/30/2009, Duration: 3 years.

Meta-MAC Protocols: A New Dimension to Adaptation in Medium, Access Control", Principal Investigator: A. Farago, Funding source: National Science Foundation, Total amount granted: \$300,000, Start date: 9/01/2001, End date: 8/31/2006, Duration: 5 years,

"MERIT: A Formal Framework for Systematic Protocol Assessment", NSF Grant # ANI-0220001, ITR program, amount \$431,086; 10/01/2002; duration 5 years; PI: A. Farago; Co-PI: V.R. Syrotiuk.

"A Formal Framework for Systematic Protocol Assessment", Principal Investigator: A. Farago, Funding source: ITR Program, National Science Foundation. Total amount granted: \$431,086, Start date: 10/01/2002, End date: 9/31/2007, Duration: 5 years, Note: This grant was obtained in the most competitive NSF program, in the Information Technology Research (ITR) program.

A Systematic Framework for Integrating Multiple Antenna Systems and MAC Protocols", new grant (internal), Principal Investigators: M. Torlat, N. Al-Dhahir, A. Farago and K. Sarac, Funding source: Internal funding, Total amount granted: \$120,000 (shared equally by the PIs) Start date: 10/26/2005, End date: Unspecified, Duration: Unspecified

G. Gupta

PI, Training Students for Research and Teaching Careers in Computer Science and Software Engineering, "Dept. Of Education. \$507,000, 2006-09. Co-PI: Zhang, Huynh, Ntafos, Kim, Milli. \$500,000 matching funds from Texas Enterprise Funds.

Co-PI, Computer Security Research," Department of Defense. \$75,000. PI: K. Sarac.

Co-PI. Web-based Emergency Response Management Technology. US Environmental Protection Agency. \$3,850,000, 2000-07. PI: D. Harris. Co-PI: B. Raghavachari.

G. Gupta - continued

Co-PI. Training Software Engineers for the High-Tech Workforce. PI: K. Zhang. Co-PIs: S. Kim, D. T. Huynh, S. Niatos, S. Bowen. NSF. \$385,000. 2004-2008. Additional matching funds from UT Dallas: \$120,000.

Consultant. Interdisciplinary research in bioinformatics. "Award to New Mexico State University from NSF. 2004-2009.

PI. Buffer Attack-proofing Software Binaries. AT&T Corp. \$16,667 with \$16,667 matching funds from the State of Texas Emmitt Project Funds. (PI receiving grant is E. Douglas Harris).

PI. Development of a Universal Services Description Language (USDL). Metallact Corp. \$20,000 with \$20,000 matching funds from the State of Texas Emmitt Project Funds. 2005-2006.

Co-PI. The Development of a Global Translation Appliance with Applications to Assistive Technologies. PI: A. Karshtner, Co-PIs: K. Miesenberger (Linz), E. Pontelli (NMSU), H.-F. Guo (SUNY-SB). Dept. of Education. \$417,000. 2001-2006.

PI. Resources for Research in Scalable Parallel Computing and Networking Simulation. US National Science Foundation. (including 33% matching funds from UTD) \$93,000, Co-PIs: R. Prakash, O. Daescu. 2001-2006.

S. Harabagiu

AQUAINT-3: AQUINAS: Answering Questions Using Inference and Advanced Semantics
PI Sanda Harabagiu, \$1,200,001.00, September 2006-October 2008, 2 years, Subcontract: ICSI Berkeley.

AQUAINT-3: AQUINAS: Answering Questions Using Inference and Advanced Semantics
PI Sanda Harabagiu, \$1,200,001.00, September 2006-October 2008, 2 years, Subcontract: ICSI Berkeley.

AQUINAS: Answering Questions Using Inference and Advanced Semantics, PI Sanda Harabagiu, \$3,293,880.00, September 2004-September 2008, 4 years, Subcontracts: Stanford University, ICSI Berkeley.

S. Harabagiu

"Training Students in Software Engineering for High-Tech Workforce", NSF, \$380,000, 2004-2007, PIs: Gupta, Zhang.

J. Jue

NeTS-NBD Collaborative Research: SOON: Service-Oriented Optical Networks. PI: Jason P. Jue, NSF, \$357,721 requested, 9/1/06-8/31/09.

J. Jue - continued

PIRE: Designing and Implementing the Telecommunication Networks of the Future, Co-PI: Jason P. Jue; PI: Andrea Fumagalli, NSF, pre-proposal.

CAREER: Design and Analysis of Photonic Packet-Switched Networks, PI: Jason P. Jue NSF, \$400,309 requested, \$320,954 granted, 8/1/02-7/31/07.

NeTS-NR Collaborative Research: Multi-Layer Dual-Homing Survivability for the Next-Generation Internet, PI: Jason P. Jue, NSF, \$323,819 requested, \$252,000 granted, 9/1/04-8/31/07, (Funding rate: 10%).

NeTS-NBD Collaborative Research: SOON: Service-Oriented Optical Networks, PI: Jason P. Jue, NSF, \$357,721 requested, \$235,512 granted, 9/1/06-8/31/09, (Funding rate: 10%).

M. Kantarcioglu

Murat Kantarcioglu, PI, Department of Energy, "Secure Distributed Computing for Open Grid Environment", \$299,958, 06/12/06-06/12/09.

Murat Kantarcioglu, co-PI, NSF, "Infrastructure for the Secure Management of Geospatial Data" 08/01/06-07/31/09 \$527,067.

Murat Kantarcioglu, PI, NSF, "Equilibrium Strategies in Adversarial Learning" 08/01/06-07/31/09 \$197,734.00.

Murat Kantarcioglu, co-PI, Texas Advanced Research Program, "Incentive compatible secure data sharing", \$99,866.

Murat Kantarcioglu, co-PI, NSF, "Security and Privacy Management of Geospatial Data", \$244,999, 07/1/07 - 06/30/10 Pending.

Murat Kantarcioglu, PI, NSF "Secure and Efficient Querying of Encrypted Data using Secure coprocessors", \$454,000, 09/01/2007-08/30/2011 Pending.

Murat Kantarcioglu, co-PI, NSF "Risk-based Trust Policy Management for Data Sharing in Collaborative Applications", \$529,956, 08/01/2007-02/13/2011 Pending.

Murat Kantarcioglu, PI, AFOSR, "Systematic Control and Management of Data Integrity, Quality and Provenance for Command and Control Applications", \$120,000 12/1/2006 - 11/30/2009.

L. Khan

"Information Operations Across Infospheres", PI: Bhavani Thuraisingham, Co-PIs: Ravi Sandhu and Latifur Khan, Funding Organization: Air Force Office of Scientific Research, Date: January 1, 2006 to December 31, 2008, Award Amount: \$300,106.

"Design and Development of Semantic Web and Data Mining Technologies for Geospatial Data" Bhavani Thuraisingham and Latifur Khan (co-PI), Funding Organization: Raytheon
Date: June 2006 to June 2007, Award Amount: \$100,000.

Yang Liu

Aspects of Prosody as Used in Chinese and English. PI: UTA-UTD Joint Research program.
\$10,000. 04/15/2006 - 04/14/2007.

Automated Annotation in NIGHTINGALE (Novel Information Gathering and Harvesting Techniques for Intelligence in Global Autonomous Language Environments), PI at UTD (subcontract to SRI), DARPA. Funded for Year 1, 2006: \$45,130; Year 2, 2007: \$60,000.

UTD Internal Award for proposal "CAREER: Utilizing Rich Information for Speech Summarization in Meetings". \$30,000. 2007-2008.

R. Mili

Application for Federal Education Assistance, Graduate Assistance in Areas of National Need US Department of Education. PI: G. Gupta, Co-PIs: K. Zhang, R. Mili, S. Kim, DT Huynh, S. Ntafos, 2006-2009, Total Proposal Budget: \$669,152.

N. Mittal

A Robust Distributed Messaging Architecture based on Publish-Subscribe Framework
Investigator: Neeraj Mittal (PI), Tektronix, September 1, 2006 - August 31, 2007, (\$46,125)

Undergraduate Research Training and Experience in Software Engineering and Information Assurance, Investigators: Kang Zhang (PI), 11 co-PIs/senior personnel including Neeraj Mittal
National Science Foundation (NSF), May 1, 2007 - April 30, 2010, (\$299,366)

CAREER: Scalable Algorithms for Dynamic Distributed Systems based on Partial-Knowledge
Investigator: Neeraj Mittal (PI), National Science Foundation (NSF), January 16, 2007 - January 15, 2012, (\$444,303)

A Framework for Developing Applications for Peer-to-Peer Dynamic Distributed Systems
Investigator: Neeraj Mittal (PI), National Science Foundation (NSF), September 1, 2006 - August 31, 2008, (\$185,366)

D. Moldovan

InterVoice, Private Industry, PI Dan Moldovan, \$1,000,000, November 2002-October 2007, 5 years.

A Tool for Transforming WordNet into a Core Knowledge Base, NSF, PI Dan Moldovan
\$693,400.00, July 2001-June 2004, extended June 2006.

S. Ntafos

"Training Students in Software Engineering for the High-Tech Workforce, NSF-CSEMS, with K. Zhang, G. Gupta, D. Huynh, et al, \$385,000 (8/04-6/07).

"UTD ECS-TEC Undergraduate Expansion Program", Texas Higher Education Coordinating Board, Simeon Ntafos (PI) with John Fonseka, Kang Zhang, \$156,007 (8/2005-8/2007).

"Training Doctoral Students for Teaching and Research Careers in Computer Science, Gopal Gupta (PI), with Simeon Ntafos, et al., Dept. of Education, \$168,896, (8/2006 - 8/2009).

"Jonsson School Undergraduate Scholars Program", Texas Higher Education Coordinating Board, Simeon Ntafos (PI) with D. T. Huynh \$95,000 (8/2006-8/07).

B. Prabhakaran

"REU - CAREER: Animation Databases", National Science Foundation (NSF)-Information & Intelligent Systems (IIS), IIS-0237954, PI: B. Prabhakaran, \$12,000, August 2006 - 2007.

"Archiving 3D Motions", PI: B. Prabhakaran, Project Emmit grant, \$30,000, December 2006.

"Storage, Retrieval, and Delivery of 3D Models and Multi-attribute Motion Data", PI: B. Prabhakaran, Army Research Office (ARO), Program: Discrete Mathematics and Computer Graphics, Mathematics Division. \$240,000, September 2005 - August 2008.

"NeTS-ProWIN: Interference Aware Adhoc Networks", PI: B. Prabhakaran, Project Emmit Grant, \$75,000, March 2005 - August 2006.

"Study on the Platform for QoS guaranteed Traffic Engineering and Multimedia Service under Next Generation Wired/Wireless Integrated Network Environment", International Collaboration Partner: B Prabhakaran, PI: Prof. Eunjung Hwang, Korea IT Industry Promotion Agency, 2003/8/1 - 2007/7/31, \$5.5 million (multi-party project with several universities).

R. Prakash

Development of Sensor Hardware and Wireless Network Test Beds. Investigators: S. Venkatesan (principal) and Ravi Prakash. Signal Technology. A Crane Company, Plano TX, (\$48,000) (January 2006-January 2007). Extension to the contract of previous year.

Development of Sensor Hardware and Wireless Network test Beds. Investigators: S. Venkatesan, Ravi Prakash, and Neeraj Mittal. Signal Technology, A Crane Company, Plano TX, Information Warfare Directorate (prime: Signal Technology), (\$20,000) (October 2006-April 2007).

Network-Centric Operations and Warfare Modeling and Simulation Integration Center. Investigators: S. Venkatesan (principal), Ravi Prakash and Neeraj Mittal. Rockwell Collins, Inc., Richardson TX, (\$200,000) (September 2005- August 2006).

Development of Sensor Hardware and Wireless Network Test Beds. Investigators: S. Venkatesan (principal) and Ravi Prakash. Signal Technology, Plano TX, (\$90,000) (Amy 2005-February 2007).

Research and Development of 3GE-WLAN Seamless Handover for 3GPP Evolution User Equipment. Investigators: S. Venkatesan (principal) and Ravi Prakash. ETHI. South Korea, (\$100,000) (September 2005- August 2006).

Self-configuring Hubless Wireless Networking: RFID Networking on Ships. Principal Investigator: Ravi Prakash, Williams-Pyro, Inc./ U.S. Navy, (\$65,000) (September 2004- June 2006).

US-Switzerland Cooperative Research: Reliable Communication Support for Resource Management in Mobile Ad Hoc Networks. Principal Investigator: Ravi Prakash. National Science Foundation, (\$29,668) (September 2004-August 2006).

CAREER Award Resource management in mobile ad hoc networks – the spatial dimension Principal Investigator: Ravi Prakash. National Science Foundation, (\$250,000) (April, 2001-March, 2006).

K. Sarac

P2cast: Receiver Controlled Communication Service for the Internet, Cisco Systems and UTD Cyber Security and Emergency Preparedness Institute, \$33,333.00; June 2005 – May 2006.

Capacity Building: Training Students for Careers in Information Assurance, Department of Defense, IASP Program, \$75,000.00; August 2006 – July 2007 (Co-PI: Dr. Gupta).

The Last Mile: Building the Final Piece in One-to-Many Content Distribution, Cisco Systems University Research Program, unrestricted gift to support our research program in IP multicast management and security, \$50,000.00; October 2006.

K. Sarac - continued

Capacity Building: Training Students for Careers in Information Assurance, UT Dallas, Texas Enterprise Funds, \$24,000.00; September 2006.

The Last Mile: Building the Final Piece in One-to-Many Content Distribution, UT Dallas, Texas Enterprise Funds, \$15,000.00; November 2006.

Ed Sha

Texas Advanced Research Program, Co-PI, (with Y. Liu), *GENETREK: A Bioinformatics System for Context-Driven Functional Clustering of Genes*, \$100,000, May 2006 - May, 2008.

Efficient Spatial-Temporal Analysis of Environment and Public Health Related Data, Co-PI (W. Wu, E. Sha, F. Qiu), NSF, IIS-0513669, \$397,504, Sept. 2005 - Aug. 2008.

Design Space Exploration and Synthesis for Multiple-Mode Embedded Systems, PI (E. Sha), NSF ITR, CCR-0309461, \$210,000 plus UTD Matching, Sept. 2003 - Aug. 2007.

The Development of Trustworthy Computing Course, PI (E. Sha), Microsoft, \$50,000, 2005 - Present.

Embedded Systems Research, PI (E. Sha), Wind River, Wind River University Program Grant, Platform Software for Network Equipment, and Development Tools for VxWorks, \$100,000, 2004 - Present.

Embedded Systems Design and Optimization, PI (E. Sha), Altera Corporation, Altera University Program Grant, QUARTUS II development suites, \$22,000, 2006 - Present.

Hong Kong, Research Grant Council, CO-PI (with Bin Xiao), *RGC PolyU A-PA2F, To Provide Network Security from the Prevention of Buffer Overflows to the Early-stage Detection of DDoS Attacks*, HK \$150,000, Aug. 2005 - July 2007.

B. Thuraisingham

"Information Operations Across Infospheres" PI: Bhavani Thuraisingham, Co-PIs: Ravi Sandhu and Latifur Khan Funding Organization: Air Force Office of Scientific Research Date: January 1, 2006 to December 31, 2008, Award Amount: \$300,106.

"System Integrity Control" PI: Murat Kantarcioglu, Co-PI: Bhavani Thuraisingham, Funding Organization: Air Force Office of Scientific Research, Date: December 1, 2006 to November 30, 2009, Award Amount: \$120,000

Geospatial semantic web and geospatial data mining, PI: Bhavani Thuraisingham, Co-PI: L. Khan, Funding: Raytheon, Date: July 2006 – June 2007, Amount: \$100,000

S. Venkatesan

"Development of sensor hardware and wireless network test beds," \$20K, Information Warfare Directorate (Prime: Signal Technology). 10/16/06 - 04/02/07, PI: S. Venkatesan, Co-PI: Ravi Prakash.

"Network-Centric Operations and Warfare Modeling and Simulation Integration Center," \$200,000, September 1, 2005- August 31, 2007, PI: S. Venkatesan, Co-PIs: R. Prakash and N. Mittal.

"Research and Development of 3GE-WLAN Seamless Handover for 3GPP Evolution User Equipment," ETRI, Korea (\$100,000), September 2005-August 2006, PI: S. Venkatesan, Co-PI: R. Prakash.

"Development of sensor hardware and wireless network test beds" \$90,000 (\$78,000 in cash and \$12,000 in new equipment), SigTech, A Crane Company, Plano TX, September 2005-December 2006 (with R. Prakash).

"Research in search technologies," \$17,000, Unrestricted Gift, Sabre Holdings.

"Environment Monitoring in Warehouses using Sensors and Sensor Networks," Crystal Technology & Industries, Inc., \$35,000, September 1 2005- August 31, 2007.

E. Wong

"A Framework for Quantitative Evaluation of Software Testing Process," PI: B. Choi (Ewha Woman's University, Seoul, Korea), Co-PI: W. E. Wong, Information Technology Research Center (ITRC) sponsored by the Korean Government, \$220K, 09/01/2006-08/31/2010.

"An Agent-based Testing Approach for Web Applications," PI: W. E. Wong, Long Capital International, \$40K, 07/17/2006-08/31/2007

"A Testing Framework for Reproducible Execution and Race Condition Detection in Real-Time Embedded Systems," PI: Y. H. Lee (Arizona State University), co-PI: W. E. Wong, NASA, \$555K, 01/01/2005-12/31/2007.

"A Comprehensive Framework for Testing and Analyzing C++ Applications," PI: W. E. Wong, Avaya Research Labs (formerly part of Lucent Bell Labs), \$45K, 02/01/2005-03/31/2006.

Service Oriented Architecture for Converged Communication, PI: W. E. Wong, Avaya Research Labs, \$58K, 09/10/2004-01/31/2006

"A Framework for Optimizing Software Metrics Models Constructed Using Maximum Likelihood Methods," PI: V. Chan (Macao Polytechnic Institute), co-PI: W. E. Wong, Macao High Tech Foundation sponsored by Macao Government, \$30K, 07/01/2005-06/30/2008.

NASA \$962.5K Information Technology Research Center (ITRC) \$220K.

E. Wong - continued

Avaya Research Labs \$103K, Macao High Tech Foundation \$30K.

IBM/The Institute of Software Engineers, \$170K Long Capital International \$40K.

W. Wu

Collaborative Research: Development of Effective Gene Selection Algorithms for Micro array Data Analysis. Agency submitted: NSF, PI: Weili Wu, Co-PI: DZ Du, Amount granted: \$150,000.00, Time duration: from 8/1/2006 to 7/31/2009.

Special Meeting: Workshop on Future Direction in Numerical Algorithms and Optimization Agency submitted: NSF, PI: Weili Wu, Co-PI: DZ Du, Amount granted: \$26,000.00, Time duration: from 10/1/2006 to 9/31/2007.

Efficient Spatial-Temporal Analysis of Environment and Public Health Related Data Agency submitted: NSF, PI: Weili Wu, Co-PI: Edwin Sha and Fang Qiu, Amount granted: \$397,504.00, Time duration: from 9/1/2005 to 8/31/2008.

NSG: Studies in Optimizations with Applications, Agency submitted: NSF, PI: Weili Wu Amount granted: \$250,804.00, Time duration: from 8/15/2005 to 7/31/2008.

Collaborative Research: CFI-ISG: Fault-Tolerant and Secure Infrastructure for Time Critical Embedded Systems, Agency submitted: NSF, PI: Weili Wu, Total requested: \$192,003.00 Amount granted: \$150,000.00, Time duration: from 9/1/2005 to 8/31/2008.

Collaborative Research: Development of Vector Space based Methods for Protein Structure Prediction, Agency granting: NSF, Amount granted: \$128,500.00. Time duration: from 7/1/2003 to 6/30/2006.

I. Yen

MRI: Development of an Infrastructure for Assured Information Sharing and Analysis of Healthcare and Biomedical Applications, Bhavani Thuraisingham (PI), Latifur Khan, E Douglas Harris, and I-Ling Yen, Submitted to National Science Foundation, Jan 2007

CRI: CRD Collaborative Research: An International Infrastructure for Testing, Evaluation, and Experimentation of Web Services, I-Ling Yen (PI), Farokh Bastani, Submitted to National Science Foundation, Nov. 2006.

CRI: IAD Collaborative Research: Infrastructure for Research in High-Assurance Real-time Network Embedded Software Systems (HARNESS), Farokh Bastani (PI), Rym Mili, Weichen Wong, I-Ling Yen, and Kang Zhang, Submitted to National Science Foundation, Nov. 2006.

I. Yen - continued

QoS-Assured Automated Web Service Composition, Farokh Bastani (PI), Jing Dong, I-Ling Yen, Kang Zhang. Submitted to National Science Foundation, Oct. 2006.

Component-Based QoS-Driven Synthesis of Embedded Software (Phase II), I-Ling Yen (PI), Farokh Bastani, and Kendra Cooper, Submitted to NASA STTR (subcontract to IA Tech, Inc.), Jan 2006.

CT-T: A Semantic Framework for Enforcing Confidentiality, Privacy and Trust, Bhavani Thuraisingham (PI), Gopal Gupta, Latifur Khan, and I-Ling Yen, Submitted to National Science Foundation, March 2006.

End-to-End Dependability Assurance for Command-and-Control Systems, I-Ling Yen (PI), Farokh Bastani, and Jing Dong, Department of Defense SPAWAR/NISTP (subcontract to Independent Engineering, Inc.), May 1, 2005 - Oct 31, 2006, \$44,058.

Component-Based QoS-Driven Synthesis of Embedded Software, I-Ling Yen (PI), Farokh Bastani, and Kendra Cooper, NASA STTR, (subcontract to IA Tech, Inc.), May 1, 2005 - Aug. 31, 2006, \$100,000 (\$28,000 for UTD).

K. Zhang

\$385,000, National Science Foundation (CSEMS), *Training Students in Software Engineering for the High Technology Workforce*, Current: 09/01/04-08/31/08 (PI: K. Zhang, Co-PIs: G. Gupta, D.T. Huynh, S. Ntafos, S. Kim).

\$26,684, National Science Foundation (HCI), *Workshop: VL/HCC'05 Doctoral Consortium*, Current: 06/01/05-05/31/06 (PI: K. Zhang).

\$156,007, Texas Technology Workforce Development Grant Program (TETC), *UTD School of Engineering and Computer Science - TETC Undergraduate Expansion Program*, Current: 07/01/2005-06/30/2007 (PI: S. Ntafos, Co-PIs: J. Fonseca, K. Zhang).

\$506,688, US Department of Education (GAANN), *Training Students for Research and Teaching Careers in Computer Science and Software Engineering*, Current: 09/01/2006-08/31/2009 (PI: G. Gupta, Co-PIs: K. Zhang, S. Ntafos, R. Mili, D.T. Huynh, S. Kim).

S.O. Zheng

"Toward Optimal Structures of Wide-Sense Nonblocking Switching Networks," NSF, \$100,000, submitted in 2006, approved.

"Optimization of Hypergraphs and Combinatorial designs with Applications", \$150,000, NSF 0514092. 7/15/2005-7/14/2007.

Distinguished Lecturer Series

Eugene H. Spafford

Professor of Computer Science and Electrical and Computer Engineering, Philosophy and Communication, and Executive Director of CERIAS at Purdue University

“Cyber Security: Past, Present and Future”

Feb. 11, 2005

Richard Waldinger

Principal Scientist in the Artificial Intelligence Center at SRI International

“Deductive Choreography of Web Services”

Feb. 25, 2005

Herbert Edelsbrunner

Arts and Sciences Professor of Computer Science and Mathematics at Duke University

“Protein Docking with Elevation” March 25, 2005

Ian Foster

Director of the Distributed Systems Lab at Argonne National Laboratory and the University of Chicago

“Service-Oriented Science” Sept. 9, 2005

David Garlan

Professor of Computer Science and Director of Software Engineering Professional Programs in the School of Computer Science at Carnegie Mellon University

“Software Architecture: Past, Present and Future”

Oct. 14, 2005

Andries van Dam

Vice President for Research, Thomas J. Watson Jr. Professor of Technology and Education, and Professor of Computer Science at Brown University

“Immersive Virtual Reality in Scientific Visualization”

Nov. 11, 2005

Christos Papadimitriou

C. Lester Hogan Professor of Computer Science at the University of California, Berkeley

“Networks and Games”

Nov. 12, 2005

Mostafa Ammar

Regents' Professor in the College of Computing at Georgia Tech

“Data-Powered Computing”

Feb. 10, 2006

Bernard Chazelle

Professor of Computer Science at Princeton University

“Data-Powered Computing”

March 24, 2006

Moshe Y. Vardi

George Professor in Computational Engineering and Director of the Computer and Information Technology Institute at Rice University

“And Logic Begat Computer Science: When Giants Roamed the Earth” and “Where Have All The IT Jobs Gone? There, There, and Right Here”

Sept. 8, 2006

Pascal Van Hentenryck

Professor of Computer Science at Brown University

“Online Stochastic Combinatorial Optimization”

Oct. 13, 2006

Elaine Weyuker

Empirical Software Engineering Researcher at AT&T Labs

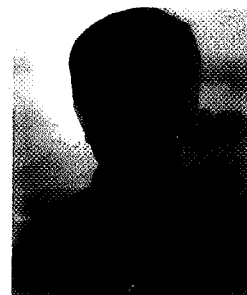
“Fault Prediction: Goals, Models, Experience”

Nov. 10, 2006

New Computer Science Faculty 2004-2006

Dr. Ding-Zhu Du, *Professor*

Dr. Zhu received his M.S. degree in 1982 from the Institute of Applied Mathematics of the Chinese Academy of Sciences and his Ph.D. in 1985 from the University of California, Santa Barbara. He worked at the Mathematical Sciences Research Institute in Berkeley from 1985 to 1986, at MIT from 1986 to 1987 and at Princeton University from 1990 to 1991. He was an associate professor/professor in the Department of Computer Science and Engineering at the University of Minnesota from 1991 to 2005, and he was a research professor at the Institute of Applied Mathematics of the Chinese Academy of Sciences from 1987 to 2002. His research interests include combinatorial optimization, communications networks and the theory of computation. He has published more than 140 journal papers and 40 books. He is editor-in-chief of the Journal of Combinatorial Optimization and of a book series on network theory and applications. He is also on the editorial boards of more than 10 journals. He is well known for proving the Gilbert-Pollak conjecture on the Steiner ratio, the Derman-Leiberman-Ross conjecture on optimal 2-out-of- n consecutive systems and the global convergence of the Rosen gradient projection method in nonlinear programming.



Dr. (Tiger) Xiaohu Guo, *Assistant Professor*

Dr. Guo earned his Ph.D. and M.S. degrees in computer science from the State University of New York at Stony Brook in 2006 and 2004, respectively, and he earned a B.S. degree in computer science from the University of Science and Technology of China in 2001. He is interested in almost all areas related to computer graphics, including visualization, animation, geometric modeling, physically based modeling and simulation, human-computer interaction, virtual reality and virtual environments, surgical simulation, medical image analysis, and computer vision. His previous and current research has focused mainly on areas such as point-based surface modeling, mesh-free surface and volumetric simulation and animation, point-surface parameterization, surface and volumetric mapping, and mesh-free surgical simulation.



Dr. Kevin Hamlen, *Assistant Professor*

Dr. Hamlen received his Ph.D. and M.S. degrees in computer science from Cornell University in 2006 and 2002, respectively, and he earned a B.S. degree from Carnegie Mellon University in the dual majors of computer science and mathematical sciences in 1998. His research involves the development and analysis of technologies for enforcing security policies that constrain the behavior of untrusted code. Enforcing security policies over untrusted code has become increasingly important with the rise of distributed and extensible systems. For example, Web browsers that upload and execute applet programs (e.g., in the form of .NET or JVM bytecode)



must somehow ensure that this untrusted code behaves in a way that is consistent with the intentions of the Web browser designer, client network administrators and users of the client machine.

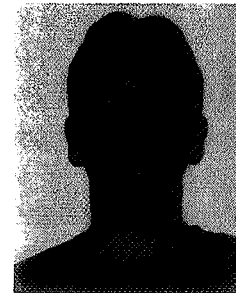
Dr. Vasileios Hatzivassiloglou, *Associate Professor*

Dr. Hatzivassiloglou received a five-year diploma degree in computer science and computer engineering from the University of Patras in Greece in 1990, and he earned his Ph.D. in computer science from Columbia University in 1998. His research interests include statistical natural language processing, machine learning, automated acquisition of semantic knowledge from large amounts of text, summarization, question answering, intelligent information retrieval, digital libraries, text mining, bioinformatics and medical informatics. Dr. Hatzivassiloglou has received approximately \$19.5 million in research funding in connection with 14 successful grant proposals as principal investigator or co-principal investigator. Sources of support include the National Science Foundation, the Defense Advanced Research Projects Agency, the Advanced Research Development Activity (funding intelligence-related research), the National Institutes of Health, the National Library of Medicine, the Department of Homeland Security, industry and New York state agencies. He has published more than 55 papers in major journals or as book chapters or has delivered them at international conferences. He has given 18 invited talks to academia, industry and government institutions in the United States, Europe and Japan, and he has served on advisory committees to the Central Intelligence Agency, the National Science Foundation and the European Union. Coverage of his work has appeared in The New York Times, USA Today, The Economist, Wired, Le Monde, La Stampa and on BBC News.



Dr. Murat Kantarcioglu, *Assistant Professor*

Dr. Kantarcioglu obtained his Ph.D. from Purdue University in 2005 under the supervision of Professor Chris Clifton. He received his M.S. degree in computer science from Purdue University in 2002 and his B.S. degree in computer engineering from Middle East Technical University in Ankara, Turkey, in 2000. During his graduate years, he worked as a summer intern at the IBM Almaden Research Center and at NEC Labs. His research interests lie at the intersection of privacy, security, data mining and databases. He is interested in security and privacy issues raised by data mining; distributed data mining techniques; security issues in databases; applied cryptography and secure multi-party computation techniques; and the use of data mining for intrusion detection.



Dr. Yang Liu, *Assistant Professor*

Dr. Liu obtained her B.S. and M.S. degrees in electrical engineering from Tsinghua University in the People's Republic of China, and she received her Ph.D. in electrical and computer engineering from Purdue University in 2004. She was a postdoctoral research fellow at the International Computer Science Institute (ICSI) in Berkeley before joining the UTD faculty, and she has been a member of the speech group at ICSI since 2002. Her general research interest is human language processing, including speech and written text. Her dissertation was on enriching speech recognition output with structural metadata events (e.g., sentence boundaries and disfluencies) and was funded by the DARPA ERAS program. She is currently working on speech recognition,



dialogue understanding and the machine learning techniques in these applications, and she was a member of the team working on parsing speech and structural metadata event detection at the 2005 Johns Hopkins summer workshop.

Dr. Ying Liu, *Assistant Professor*

Dr. Liu received his Ph.D. in computer science from the College of Computing at the Georgia Institute of Technology in 2005. He also holds an M.S. degree in bioinformatics and an M.S. in computer science from Georgia Tech, and he received a B.S. in biology from Nanjing University. His research interests include bioinformatics, medical informatics, computational biology and data mining. His thesis work focused on two areas: on applying machine learning algorithms in DNA micro-array data analysis and on text mining biomedical literature to discover gene-to-gene relationships. He has worked closely with researchers from the Emory University School of Medicine and the Centers for Disease Control and Prevention. In 2002 he worked as a research intern at the General Electric Global Research Center, where he designed a cardiovascular pathway database. He also developed algorithms to mine biological databases to discover such information as consensus sequences and protein domains.



Dr. Vincent Ng, *Assistant Professor*

Dr. Ng joined UTD in 2004 immediately after receiving his Ph.D. in computer science from Cornell University. He obtained his B.S. in computer science from Carnegie Mellon University in 1997 and his M.S. in computer science from Cornell in 2002. His research involves natural language processing, machine learning and information retrieval. He is interested in developing algorithms and systems that allow users to locate and extract useful information from online text. More specifically, he is developing machine learning techniques for building robust and portable information-extraction systems.



Dr. Bhavani Thuraisingham, *Professor and Director of the Cyber Security Research Center*

Dr. Thuraisingham holds an M.Sc. degree from the University of Bristol and a Ph.D. from the University of Wales. She is a fellow of the Institute of Electrical and Electronics Engineers (IEEE), the American Association for the Advancement of Science and the British Computer Society, and she received the IEEE's prestigious 1997 Technical Achievement Award for "outstanding and innovative contributions to secure data management."



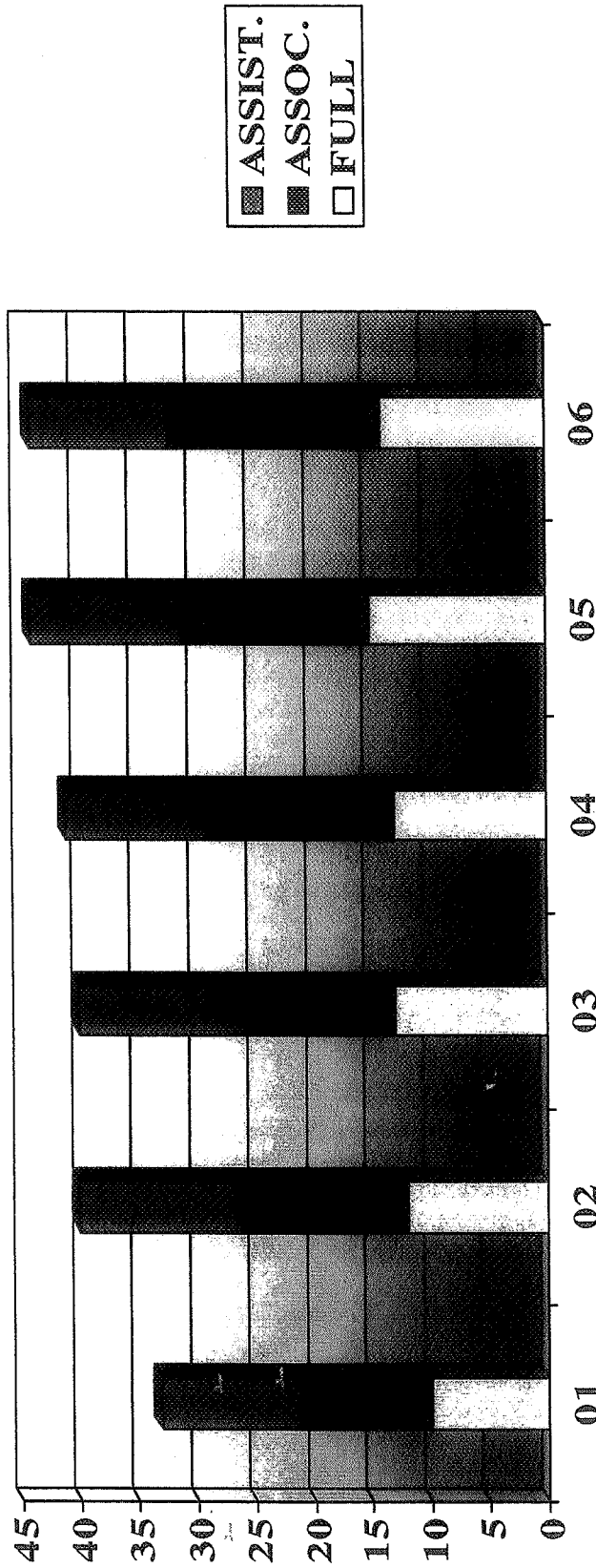
Dr. Thuraisingham's research in information security and information management has resulted in more than 60 journal articles, more than 200 refereed conference papers and three U.S. patents. She is the author of seven books on data management, data mining and data security, including one on data mining for counter-terrorism. She has given more than 25 keynote presentations at various research conferences and has also delivered invited talks to the White House Office of Science and Technology Policy and at the United Nations on data mining for counter-terrorism. She serves on the editorial boards of ACM Transactions on Information and Systems Security, IEEE Transactions on Dependable and Secure

Systems, IEEE Transactions on Knowledge and Data Engineering, and the Journal of Computer Security. She currently serves as editor-in-chief of North Holland's Computer Standards and Interface Journal.

Prior to joining UTD, Dr. Thuraisingham was on leave from the MITRE Corp. as a program director at the National Science Foundation, where she established the Data and Applications Security Program, co-founded the Cyber Trust theme and was involved in interagency activities in data mining for counter-terrorism. She spent 16 years at MITRE, where she worked in the organization's Information Security Center and was a department head in data and information management, as well as chief scientist in data management. She has served as an expert consultant in information security and data management for the U.S. Department of Defense, the U.S. Department of the Treasury and the intelligence community. Her industry experience includes six years of research and development at Control Data Corp. and Honeywell Inc.

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Tenured/Tenure-Track Faculty Growth



Fall	01	02	03	04	05	06
Full	10	12	13	13	15	14
Assoc.	11	14	13	16	16	18
Assist.	12	14	14	12	13	12
Total	33	40	40	41	44	44

Senior Lecturers	14	15	15	14	12	10
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COMPUTER SCIENCE DEPARTMENT

Faculty Search Announcements

Distinguished Research Scientists

The Department of Computer Science of the University of Texas at Dallas invites applications for several distinguished research scientist positions in all areas of Computer Science starting Summer or Fall 2006. Candidates must have a Ph.D. degree in Computer Science, Software Engineering, Computer Engineering, Applied Mathematics or related fields. Successful candidates are expected to work on cutting-edge research projects with a faculty member(s).

These positions are budgeted for one year, and can be renewed for the second year. Candidates must be eligible to work in the United States, and must have earned a Ph.D. degree within the last two years. The salary range is \$40,000 - \$70,000.

The Department offers Ph.D. degrees in Computer Science and Software Engineering; M.S. degrees in Computer Science with emphases (tracks) on Networks and Telecommunications, Traditional Computer Science, Intelligent Systems, and a Major in Software Engineering; and B.S. degrees in Computer Science and Software Engineering (the first in the State of Texas). In addition, the department is part of Ph.D. and master's programs in two interdisciplinary fields, Computer Engineering and Telecommunications Engineering, whose faculty consists of members from Computer Science and Electrical Engineering.

Currently the Department has a total of 43 tenure-track faculty and 11 senior lecturers. In addition to individual faculty workstations, the department has many computer/research laboratories, equipped with around 300 high performance workstations and high-end PCs. The Academic Computer Center supports both UNIX based workstations and PCs as well as high-speed dial-in access to campus computing facilities.

The University is located in the most attractive suburbs of the Dallas metropolitan area. There are over 900 high-tech companies within 5 miles of the campus, including Texas Instruments, Nortel Networks, Alcatel, Ericsson, Hewlett-Packard, Nokia, Fujitsu, MCI, EDS, and Perot Systems. Almost all the country's leading telecommunications companies have major research and development facilities in the area. Opportunities for joint university-industry research projects are excellent.

The Jonsson School has experienced very rapid growth in recent years and will become a top-ranked engineering school within five years. Based in large part on a 5-year, \$300 million initiative involving the State of Texas, the University of Texas System and Texas Instruments, the School is strengthening and expanding its programs (including Bioengineering) by recruiting outstanding faculty and Ph.D. students, increasing funded research, and establishing new programs (see www.ecs.utdallas.edu/welcome.html).

For more information, contact Dr. D. T. Huynh, Department Head, at 972-883-2169, or send e-mail to cs-search@utdallas.edu, or view the Internet Web page at <http://www.cs.utdallas.edu/>. The search committee will begin evaluating applications as soon as possible and will continue until the positions are filled.

Applicants should mail their resume with a list of at least three academic or professional references as soon as possible to:

Research Scientist Search # 777
The University of Texas at Dallas
P.O. Box 830688, M/S AD 42
Richardson, TX 75083-0688

Faculty Positions in the Department of Computer Science

The Department of Computer Science of The University of Texas at Dallas invites applications from outstanding applicants for tenure track faculty positions in all areas, at the level of associate or full professor, starting Spring, Summer or Fall 2007. Candidates must have a Ph.D. degree in Computer Science, Software Engineering, Computer Engineering or equivalent. The successful applicants must have a distinguished research and publication record as well as demonstrated leadership ability in developing and expanding funded research programs. Positions for Distinguished Chaired Professors are available.

The Department offers Ph.D. degrees in Computer Science, Software Engineering; M.S. degrees in Computer Science with emphases (tracks) on Networks and Telecommunications, traditional Computer Science, Intelligent Systems, and a major in Software Engineering; Bachelor's degrees in Computer Science and Software Engineering (the first in the State of Texas). In addition, the department is part of Ph.D. and master's programs in two interdisciplinary fields, Computer Engineering and Telecommunications Engineering, whose faculty consists of members from Computer Science and Electrical Engineering.

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The University is located in the most attractive suburbs of the Dallas metropolitan area. There are over 900 high-tech companies within five miles of the campus, including Texas Instruments, Nortel Networks, Alcatel, Ericsson, Hewlett-Packard, Nokia, Fujitsu, MCI, EDS, and Perot Systems. Almost all the country's leading telecommunication's companies have major research and development facilities in our neighborhood. Opportunities for joint university-industry research projects are excellent.

The Jonsson School has experienced very rapid growth in recent years and will become a top-ranked engineering school within the next five years. Based in large part on a five-year, \$300 million initiative involving the State of Texas, the University of Texas System and Texas Instruments, the School is strengthening and expanding its programs by recruiting outstanding faculty and Ph.D. students, increasing funded research, and establishing new programs (see <http://www.cs.utdallas.edu/about/welcome.html>).

For more information, contact Dr. D. T. Huynh, Department Head, at 972-883-2169, or send email to cs-search@utdallas.edu, or view the Internet Web page at <http://www.utdallas.edu/dept/cs>. The search committee will begin evaluating applications as soon as possible and will continue until the positions are filled.

Applicants should mail their resume with a list of at least five academic or professional references as soon as possible to:

Academic Search #783
The University of Texas at Dallas
P. O. Box 830688, M/S AD 42
Richardson, TX 75083-0688

Endowed Chair in Software Engineering

The Department of Computer Science of The University of Texas at Dallas invites applications from outstanding applicants for a distinguished chaired position in Software Engineering and related areas, starting Spring, Summer or Fall 2007. Candidates must have a Ph.D. degree in Computer Science, Software Engineering, Computer Engineering or equivalent. The successful candidate must have a distinguished research and publication record, and demonstrated leadership ability in developing and expanding funded research programs. A significant start-up package has been budgeted for this position.

The Department offers Ph.D. degrees in Computer Science, Software Engineering; M.S. degrees in Computer Science with emphases (tracks) on Networks and Telecommunications, traditional Computer Science, Intelligent Systems, and a major in Software Engineering; Bachelor's degrees in Computer Science and Software Engineering (the first in the State of Texas). In addition, the department is part of Ph.D. and master's programs in two interdisciplinary fields, Computer Engineering and Telecommunications Engineering, whose faculty consists of members from Computer Science and Electrical Engineering.

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Academic Search #784

The University of Texas at Dallas

P. O. Box 830688, M/S AD 42

Richardson, TX 75083-0688

. Faculty Position in Intelligent Systems

The Department of Computer Science of The University of Texas at Dallas invites applications for a tenure track faculty position in the area of Intelligent Systems at the full professor level, starting Spring, Summer or Fall 2007. Candidates must have a Ph.D. degree in Computer Science, Software Engineering or Computer Engineering. Candidate should have a strong record of research, teaching, and external funding. A significant start-up package has been budgeted for this position.

The Department offers Ph.D. degrees in Computer Science and Software Engineering; M.S. degrees in Computer Science with emphases (tracks) on Networks and Telecommunications, traditional Computer Science, Intelligent Systems, and a major in Software Engineering; and B.S. degrees in Computer Science and Software Engineering (the first in the State of Texas). In addition, the department is part of Ph.D. and master's programs in two interdisciplinary fields, Computer Engineering and Telecommunications Engineering, whose faculty consists of members from Computer Science and Electrical Engineering.

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Academic Search #785
The University of Texas at Dallas
P. O. Box 830688, M/S AD 42
Richardson, TX 75083-0688

Faculty Position in Bioinformatics and Computational Biology

The Department of Computer Science of The University of Texas at Dallas invites applications for a tenure track faculty position in Bioinformatics and Computational Biology and related areas at the full professor level, starting Spring, Summer or Fall 2007. Candidates must have a Ph.D. degree in Computer Science, Software Engineering, Computer Engineering or Bioinformatics-related fields. Candidates should have a strong record of research, teaching, and external funding. This position may involve a joint appointment with one of the departments in the School of Natural Sciences and Mathematics or with the newly formed Department of Bioengineering, and preference will be given to candidates who can collaborate with researchers at the U. T. Southwestern Medical Center at Dallas. A significant start-up package has been budgeted for this position.

The Department offers Ph.D. degrees in Computer Science and Software Engineering; M.S. degrees in Computer Science with emphases (tracks) on Networks and Telecommunications, traditional Computer Science, Intelligent Systems, and a major in Software Engineering; and B.S. degrees in Computer Science and Software Engineering (the first in the State of Texas). In addition, the department is part of Ph.D. and master's programs in two interdisciplinary fields, Computer Engineering and Telecommunications Engineering, whose faculty consists of members from Computer Science and Electrical Engineering.

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Academic Search #786
The University of Texas at Dallas
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Richardson, TX 75083-0688

Computer Science Course Descriptions

CS 5301 (EE 5301) Advanced Professional and Technical Communication (3 semester hours) CS 5301 utilizes an integrated approach to writing and speaking for the technical professions. The advanced writing components of the course focus on writing professional quality technical documents such as proposals, memos, abstracts, reports, letters, emails, etc. The advanced oral communication components of the course focus on planning, developing, and delivering dynamic, informative and persuasive presentations. Advanced skills in effective teamwork, leadership, listening, multimedia and computer generated visual aids are also emphasized. Graduate students will have a successful communication experience working in a functional team environment using a real time, online learning environment. (3-0) Y

CS 5303 Computer Science I (3 semester hours) Computer science problem solving. The structure and nature of algorithms and their corresponding computer program implementation. Programming in a high level block-structured language (e.g., PASCAL, Ada, C++, or JAVA). Elementary data structures: arrays, records, linked lists, trees, stacks and queues. (3-0) S

CS 5330 Computer Science II (3 semester hours) Basic concepts of computer organization: Numbering systems, two's complement notation; multi-level machine concepts, machine language, assembly programming and optimization, subroutine calls, addressing modes, code generation process, CPU datapath, pipelining, RISC vs. CISC, performance calculation. Corequisite: CS 5303. (3-0) S

CS 5333 Discrete Structures (3 semester hours) Mathematical foundations of computer science. Logic, sets, relations, graphs and algebraic structures. Combinatorics and metrics for performance evaluation of algorithms. (3-0) S

CS 5335 Programming Projects in C and C++ (3 semester hours) Numerous programming projects in both C and C++. All fundamentals of C, with special emphasis on use of pointers. Use of C++ extensions to create and extend (by inheritance) abstract data types. The use/advantages of virtual functions (dynamic polymorphism). Prerequisites: CS 5303 and CS 5330 or equivalent experience. (3-0) S

CS 5336 Programming Projects in Java (3 semester hours) Overview of the object-oriented philosophy. Implementation of object-oriented designs using the Java programming environment. Emphasis on using the browser to access and extend the Java class library. Prerequisite: CS 5303 or equivalent experience. (3-0) Y

CS 5343 Algorithm Analysis & Data Structures (3 semester hours) Formal specifications and representation of lists, arrays, trees, graphs, multilinked structures, strings and recursive pattern structures. Analysis of associated algorithms. Sorting and searching, file structures. Relational data models. Prerequisites: CS 5303, CS 5333. (3-0) S

CS 5348 Operating Systems Concepts (3 semester hours) Processes and threads. Concurrency issues including semaphores, monitors and deadlocks. Simple memory management. Virtual memory management. CPU scheduling algorithms. I/O management. File management. Introduction to distributed systems. Prerequisites: CS 5330 and CS 5343 (may be taken concurrently) and a working knowledge of C and Unix. (3-0) S

CS 5349 Automata Theory (3 semester hours) Deterministic and nondeterministic finite automata; regular expressions, regular sets, context-free grammars, pushdown automata,

context free languages. Selected topics from Turing Machines and undecidability.

Prerequisite: CS 5333. (3-0) S

CS 5354 (CE 5354, SE 5354) Software Engineering (3 semester hours) Formal specification and program verification. Software life-cycle models and their stages. System and software requirements engineering; user-interface design. Software architecture, design, and analysis. Software testing, validation, and quality assurance. Corequisite: CS 5343 (CS 5343 can be taken before or at the same time as CS 5354) (3-0) S

CS 5375 Principles of UNIX (3 semester hours) Design and history of the UNIX operating system. Detailed study of process and file system data structures. Shell programming in UNIX. Use of process-forking functionality of UNIX to simplify complex problems. Interprocess communication and coordination. Device drivers and streams as interfaces to hardware features. TCP/IP and other UNIX inter-machine communication facilities.

Prerequisite: CS 5335. (3-0) S

CS 5390 Computer Networks (3 semester hours) The design and analysis of protocols for computer networking. Topics include: network protocol design and composition via layering, contention resolution in multi-access networks, routing metrics and optimal path searching, traffic management, global network protocols: dealing with heterogeneity and scalability.. Prerequisite: CS 5343. (3-0) S

CS 5V71 Cooperative Education (1-3 semester hours) Placement in a faculty-supervised work environment in industry or government. Sites may be local or out-of-state. The cooperative education program provides exposure to a professional working environment, application of theory to working realities, and an opportunity to test skills and clarify goals. Experience gained may also serve as a work credential after graduation. (May be repeated to a maximum of 9 credit hours.) Departmental approval is required. ([1-3]-0) S

CS 5V81 (SE 5V81) Special Topics in Computer Science (1-9 semester hours) Selected topics in Computer Science. (May be repeated to a maximum of 9 credit hours.) ([1-9]-0) S

CS 6304 (CE 6304, EE 6304) Computer Architecture (3 semester hours) Trends in processor, memory, I/O and system design. Techniques for quantitative analysis and evaluation of computer systems to understand and compare alternative design choices in system design. Components in high performance processors in computers: pipelining, instruction level parallelism, memory hierarchies, and input/output. Students will undertake a major computing system analysis and design project. Prerequisites: EE 2310, EE 4320, and C/C++. (3-0) Y

CS 6320 Natural Language Processing (3 semester hours) This course covers state-of-the-art methods for natural language processing. After an introduction to the basics of syntax, semantic, and discourse analysis, the focus shifts to the integration of these modules into natural-language processing systems. In addition to natural language understanding, the course presents advanced material on lexical knowledge acquisition, natural language generation, machine translation, and parallel processing of natural language. Prerequisite: CS 5343. (3-0) Y

CS 6321 Discourse Processing (3 semester hours) Introduction to discourse processing from natural language texts. Automatic clustering of utterances into coherent units (segments) with hierarchical structures. State-of-the-art research in textual cohesion, coherence, and discourse understanding. Included topics are anaphoric reference and ellipsis, notion of textual context, and relationship between tense, aspect, and discourse states. Prerequisite: CS 6320 or consent of the instructor (3-0) T

CS 6322 Information Retrieval (3 semester hours) The course covers modern techniques for storing and retrieving unformatted textual data and providing answers to natural language queries. Current research topics and applications of information retrieval in data mining, data warehousing, text mining, digital libraries, hypertext, multimedia data, and query processing are also presented. Prerequisite: CS 5343. (3-0) Y

CS 6324 Information Security (3 semester hours) A comprehensive study of security vulnerabilities in information systems and the basic techniques for developing secure applications and practicing safe computing. Topics include common attacking techniques such as buffer overflow, Trojan, virus, etc. UNIX, Windows and Java security. Conventional encryption. Hashing functions and data integrity. Public-key encryption (RSA, Elliptic-Curve). Digital signature. Watermarking for multimedia. Security standards and applications. Building secure software and systems. Management and analysis of security. Legal and ethical issues in computer security. Prerequisite: CS 5348 and CS 5343 (3-0) Y

CS 6325 Introduction to Bioinformatics (3 semester hours). The course provides a broad overview of the bioinformatics field. Comprehensive introduction to molecular biology and molecular genetics for a program of study in bioinformatics. Discussion of elementary computer algorithms in biology (e.g., sequence alignment and gene finding). Biological databases, data analysis and management. (3-0) T

CS 6333 Algorithms in Computational Biology (3 semester hours). The principles of algorithm design for biological datasets, and analysis of influential problems and techniques. Biological sequence analysis, gene finding, RNA folding, protein folding, sequence alignment, genome assembly, comparative genomics, phylogenetics, clustering algorithms. Prerequisite: CS 6325. (3-0)

CS 6351 Computer Systems Design (3 semester hours) Design of instruction sets, memory addressing modes, interleaved memory, cache memory design. Instruction pipelines, techniques for removing dependency delays. Computer bus systems and interfaces for various input/output device types. Pipelined and parallel functional units and their associated code generation algorithms. RISC architectures, support of high level languages, data flow machines, functional languages, lazy evaluation and graph reduction machines. Prerequisite: CS 6349. (3-0) T

CS 6352 (CE 6352) Performance of Computer Systems and Networks (3 semester hours) Overview of case studies. Quick review of principles of probability theory. Queuing models and physical origin of random variables used in queuing models. Various important cases of the M/M/m/N queuing system. Little's law. The M/G/1 queuing system. Simulation of queuing systems. Product form solutions of open and closed queuing networks. Convolution algorithms and Mean Value Analysis for closed queuing networks. Discrete time queuing systems. Prerequisite: a first course on probability theory. (3-0) S

CS 6353 Compiler Construction (3 semester hours) Lexical analyzers, context-free grammars. Top-down and bottom-up parsing; shift reduce and LR parsing. Operator-precedence, recursive-descent, predictive, and LL parsing. LR(k), LL(k) and precedence grammars will be covered. Prerequisites: CS 5343 and CS 5349. (3-0) Y

CS 6354 (CE 6354, SE 6354) Advanced Software Engineering (3 semester hours) This course covers advanced theoretical concepts in software engineering and provides an extensive hands-on experience in dealing with various issues of software development. It involves a semester-long group software development project spanning software project planning and management, analysis of requirements, construction of software architecture

and design, implementation, and quality assessment. The course will introduce formal specification, component-based software engineering, and software maintenance and evolution. Prerequisite: CS 5354 (or equivalent) and knowledge of Java (3-0) S

CS 6356 (SE 6356) Software Maintenance, Evolution, and Re-Engineering (3 semester hours) Principles and techniques of software maintenance. Impact of software development process on software justifiability, maintainability, evolvability, and planning of release cycles. Use of very high-level languages and dependencies for forward engineering and reverse engineering. Achievements, pitfalls, and trends in software reuse, reverse engineering, and re-engineering. Prerequisite: CS 5354. (3-0) Y

CS 6357 (SE 6357) Software Quality Assurance and Metrics (3 semester hours) Concepts of the pervasive system attributes: reliability, efficiency, maintainability, reusability, etc. Software complexity and measures. Software process measures, product measures and resource measure. Validation of software measures. Software measures and measurement theory. Measuring, monitoring and controlling reliability. Supporting tools. Prerequisite: CS 5354. (3-0) Y

CS 6359 (SE 6359) Object-Oriented Analysis and Design (3 semester hours) Analysis and practice of modern tools and concepts that can help produce software that is tolerant of change. Consideration of the primary tools of encapsulation and inheritance. Construction of _software-ICs_ which show the parallel with hardware construction. Prerequisites: CS 5354 and either CS 5335 or CS 5336. (3-0) S

CS 6360 (SE 6360) Database Design (3 semester hours) Methods, principles, and concepts that are relevant to the practice of database software design. Database system architecture; conceptual database models; relational and object-oriented databases; database system implementation; query processing and optimization; transaction processing concepts, concurrency, and recovery; security. Prerequisite: CS 5343. (3-0) S

CS 6361 (SE 6361) Requirements Engineering (3 semester hours) System and software requirements engineering. Identification, elicitation, modeling, analysis, specification, management, and evolution of functional and non-functional requirements. Strengths and weaknesses of different techniques, tools, and object-oriented methodologies. Interactions and trade-offs among hardware, software, and organization. System and sub-system integration with software and organization as components of complex, composite systems. Transition from requirements to design. Critical issues in requirements engineering. Prerequisite: CS 5354. (3-0) S

CS 6362 (SE 6362) Software Architecture and Design (3 semester hours) Concepts and methodologies for the development, evolution, and reuse of software architecture and design, with an emphasis on object-orientation. Identification, analysis, and synthesis of system data, process, communication, and control components. Decomposition, assignment, and composition of functionality to design elements and connectors. Use of non-functional requirements for analyzing trade-offs and selecting among design alternatives. Transition from requirements to software architecture, design, and to implementation. State of the practice and art. Prerequisite: CS 5354. (3-0) S

CS 6363 Design and Analysis of Computer Algorithms (3 semester hours) The study of efficient algorithms for various computational problems. Algorithm design techniques. Sorting, manipulation of data structures, graphs, matrix multiplication, and pattern matching. Complexity of algorithms, lower bounds, NP completeness. Prerequisite: CS 5343 (3-0) S

CS 6364 Artificial Intelligence (3 semester hours) Design of machines that exhibit intelligence. Particular topics include: representation of knowledge, vision, natural language processing, search, logic and deduction, expert systems, planning, language comprehension, machine learning. Prerequisite: CS 5343. (3-0) Y

CS 6365 Data and Text Mining for Computational Biology (3 semester hours). The course introduces data and text mining as practiced currently in the bioinformatics field. Major topics include: sequence alignment for determining similarity between proteins and genes; properties of similarities and distances; genomic, proteomic, and text databases in the real world; finding patterns (motifs) in genes and proteins; differentiating between valid patterns and noise; classification; clustering and its application to phylogenetic trees; and selected topics from text mining. Prerequisite: CS 6325. (3-0) Y

CS 6366 Computer Graphics (3 semester hours) Device and logical coordinate systems. Geometric transformations in two and three dimensions. Algorithms for basic 2-D drawing primitives, such as Bresenham's algorithm for lines and circles, Bezier and B-Spline functions for curves, and line and polygon clipping algorithms. Perspectives in 3-D, and hidden-line and hidden-face elimination, such as Painter's and Z-Buffer algorithms. Fractals and the Mandelbrot set. Prerequisites: CS 5330, CS 5343, and linear algebra. (3-0) Y

CS 6367 (CE 6367, SE 6367) Software Testing, Validation, and Verification (3 semester hours) Requirement based testing including equivalent partition, predicate analysis, boundary value analysis, and state diagrams. Test assessment and test case generation through a variety of techniques: (i) control flow analysis, (ii) data flow analysis, and (iii) mutation testing (strong, weak, and selective). Analysis and use of testing tools for control flow, data flow, and mutation for both unit and system testing. Software reliability. Derivation of verification conditions and formal proof of program.s correctness for programs with arrays. Prerequisite: CS 5354. (3-0) Y

CS 6368 Telecommunication Network Management (3 semester hours) In-depth study of network management issues and standards in telecommunication networks. OSI management protocols including CMIP, CMISE, SNMP, and MIB. ITU's TMN (Telecommunication Management Network) standards, TMN functional architecture and information architecture. NMF (Network Management Forum) and service management, service modeling and network management API. Issues of telecommunication network management in distributed processing environment. Prerequisite: One of CS 5390, CS 6390, CS 6385 or equivalent. (3-0) Y

CS 6369 Complexity of Combinatorial Algorithms (3 semester hours) Topics include bounded reducibility and completeness, approximation algorithms and heuristics for NP-hard problems, randomized algorithms, additional complexity classes. Prerequisite: CS 6363. (3-0) T

CS 6370 (SE 6370) Information Systems Engineering (3 semester hours) Study of characteristics, analysis and synthesis of information systems in industrial, business, and governmental organizations. Building conventional information systems through requirements modeling and analysis, design, and implementation. Approaches and issues in engineering and re-engineering intelligent, cooperative, and distributed information systems. Prerequisite: CS 6360. (3-0) Y

CS 6371 Advanced Programming Languages (3 semester hours) Functional Programming, Lambda Calculus, Logic Programming, Abstract Syntax, Denotational Semantics of Imperative Languages, Fixpoints semantics, Verification of Programs, Partial

Evaluation, Interpretation and Automatic Compilation, Axiomatic Semantics, Applications of semantics to software engineering. Prerequisite: CS 5343, CS 5349 (3-0) S

CS 6372 Computational Systems Biology (3 semester hours). The course will provide a system-level understanding of biological systems by analyzing biological data using computational techniques. The major topics include: computational inference of biological networks (regulatory, protein interactions, and metabolic) and the effects of biological networks in cellular processes, development, and disease. Prerequisite: CS 6325. (3-0)

CS 6373 Intelligent Systems (3 semester hours) Logical formalizations of knowledge for the purpose of implementing intelligent systems that can reason in a way that mimics human reasoning. Topics include: syntax and semantics of common logic, description logic, modal epistemic logic; reasoning about uncertainties, beliefs, defaults and counterfactuals; reasoning within contexts; implementations of knowledge base and textual inference reasoning systems; and applications. Prerequisite: CS 5343.(3-0) Y

CS 6374 Computational Logic (3 semester hours) Methods and algorithms for the solution of logic problems. Topics include problem formulation in first order logic and extensions, theorem proving algorithms, polynomially solvable cases, logic programming, and applications. Prerequisites: CS 5343, and knowledge of _C._ (3-0) Y

CS 6375 Machine Learning (3 semester hours) Algorithms for training perceptions and multi-layer neural nets: back propagation, Boltzmann machines, self-organizing nets. The ID3 and the Nearest Neighbor algorithms. Formal models for analyzing learnability: exact identification in the limit and probably approximately correct (PAC) identification. Computational limitations of learning machines. Prerequisite: CS 5343. (3-0) Y

CS 6376 Parallel Processing (3 semester hours) Topics include parallel machine models, parallel algorithms for sorting, searching and matrix operations. Parallel graph algorithms. Selected topics in parallel processing. Prerequisite: CS 6363. (3-0) T

CS 6377 Introduction to Cryptography (3 semester hours). This course covers the basic aspects of modern cryptography, including block ciphers, pseudorandom functions, symmetric encryption, Hash functions, message authentication, number-theoretic primitives, public-key encryption, digital signatures and zero knowledge proofs. Prerequisites: CS5333 and CS5343. (3-0) T

CS 6378 (CE 6378) Advanced Operating Systems (3 semester hours) Concurrent processing, inter-process communication, process synchronization, deadlocks, introduction to queuing theory and operational analysis, topics in distributed systems and algorithms, checkpointing, recovery, multiprocessor operating systems. Prerequisites: CS 5348 or equivalent; knowledge of C and UNIX. (3-0) S

CS 6379 Biological Database Systems and Data Mining (3 semester Hours) Relational data models and database management systems; theories and techniques of constructing relational databases to store biological data, including sequences, structures, genetic linkages and maps, and signal pathways. Introduction to a relational database query language (SQL) with emphasis on answering biologically important questions. Summary of current biological databases. Data integration from various sources and security. Novel data mining methods in bioinformatics with an emphasis on protein structure prediction, homology search, genomic sequence analysis, gene finding and gene mapping. Future directions for biological database development. Prerequisites: BIOL 5373, BIOL 5381, and CS 5343 or consent of the instructor (3-0) T

CS 6380 (CE 6380) Distributed Computing (3 semester hours) Topics include distributed algorithms, election algorithms, synchronizers, mutual exclusion, resource allocation, deadlocks, Byzantine agreement and clock synchronization, knowledge and common knowledge, reliability in distributed networks, proving distributed programs correct.

Prerequisite: CS 5348. (3-0) S

CS 6381 Combinatorics and Graph Algorithms (3 semester hours) Fundamentals of combinatorics and graph theory. Combinatorial optimization, optimization algorithms for graphs (max flow, shortest routes, Euler tour, Hamiltonian tour). Prerequisites: CS 5343, CS 6363. (3-0) T

CS 6382 Theory of Computation (3 semester hours) Formal models of computation. Recursive function theory. Undecidability and incompleteness. Selected topics in theory of computation. Prerequisite: Consent of Instructor. (3-0) Y

CS 6384 Computer Vision (3 semester hours) Algorithms for extracting information from digital pictures. Particular topics include: analysis of motion in time varying image sequences, recovering depth from a pair of stereo images, image separation, recovering shape from textured images and shadows, object matching techniques, model based recognition, the Hough transform. Prerequisite: CS 5343. (3-0) Y

CS 6385 (TE 6385) Algorithmic Aspects of Telecommunication Networks (3 semester hours) This is an advanced course on topics related to the design, analysis, and development of telecommunications systems and networks. The focus is on the efficient algorithmic solutions for key problems in modern telecommunications networks, in centralized and distributed models. Topics include: main concepts in the design of distributed algorithms in synchronous and asynchronous models, analysis techniques for distributed algorithms, centralized and distributed solutions for handling design and optimization problems concerning network topology, architecture, routing, survivability, reliability, congestion, dimensioning and traffic management in modern telecommunication networks. Prerequisites: CS 5343, CS 5348, and TE 3341 or equivalents. (3-0) Y

CS 6386 Telecommunication Software Design (3 semester hours) Programming with sockets and remote procedure calls, real time programming concepts and strategies. Operating system design for real time systems. Encryption, file compression, and implementation of firewalls. An in-depth study of TCP/IP implementation. Introduction to discrete event simulation of networks. Prerequisites: CS 5390. (3-0) Y

CS 6387 (SE 6387) Computer-Aided Software Engineering (3 semester hours) Tools for development, maintenance, evolution and reuse of software. Development, selection, use, and management of such tools. Traditional and emerging methodologies, including structured systems methodologies and knowledge-based approaches to software development. Opening and closing CASEs: benefits, pitfalls, and critical issues.

Prerequisite: CS 5354. (3-0) Y

CS 6388 (SE 6388) Software Project Planning and Management (3 semester hours) Techniques and disciplines for successful management of software projects. Planning, scheduling, tracking, cost and size estimation, risk management, configuration management and version control. Identification, definition, management, and optimization of software engineering processes. Benefits and pitfalls of both conventional and emerging technologies. Prerequisite: CS 5354. (3-0) Y

CS 6389 (SE 6389) Formal Methods and Programming Methodology (3 semester hours) Formal techniques for building highly reliable systems. Use of abstractions for concisely and precisely defining system behavior. Formal logic and proof techniques for verifying the correctness of programs. Hierarchies of abstractions, state transition models, Petri Nets, communicating processes. Operational and definitional specification languages. Applications to reliability-critical, safety-critical, and mission-critical systems, ranging from commercial computer communication systems to strategic command control systems. Prerequisite: CS 5354. (3-0) Y

CS 6390 (CE 6390) Advanced Computer Networks (3 semester hours) Survey of recent advancements in high-speed network technologies. Application of quantitative approach to the study of broadband integrated networks including admission control, access control, and quality of service guarantee. Prerequisite: CS 5390. (3-0) S

CS 6391 Optical Networks (3 semester hours) Enabling technologies for optical networks. Wavelength-division multiplexing. Broadcast-and-select optical networks. Wavelength-routed optical networks. Virtual topology design. Routing and wavelength assignment. Network control and management. Protection and restoration. Wavelength conversion. Traffic grooming. Photonic packet switching. Optical burst switching. Survey of recent advances in optical networking. Prerequisite: CS 5390 AND one of CS 6352, CS 6385, CS 6390 (3-0) Y

CS 6392 (CE 6392) Mobile Computing Systems (3 semester hours) Topics include coping with mobility of computing systems, data management, reliability issues, packet transmission, mobile IP, end-to-end reliable communication, channel and other resource allocation, slot assignment, routing protocols, and issues in mobile wireless networks (without base stations). Prerequisite: CS 6378 or CS 6390. (3-0) Y

CS 6393 Advanced Algorithms in Biology (3 semester hours). Recent advanced topics in algorithms in biology will be discussed. Topics will be chosen from: sorting and transformational operations on strings and permutations, structural analysis of proteins, pooling design and nonadaptive group testing, approximation algorithms, and complexity issues. Prerequisites: CS6363 and CS 6325. (3-0) Y

CS 6394 Digital Telephony (3 semester hours) Introduction and overview emphasizing the advantages of digital voice networks. Voice digitization. Digital transmission, multiplexing, and switching. Rearrangeable switching networks. Digital modulation for radio systems. Network operation issues: synchronization, control; integration of voice and data, packet switching and traffic analysis. (3-0) Y

CS 6395 Speech Recognition, Synthesis, and Understanding (3 semester hours). Basic speech processing techniques: isolated word recognition using dynamic time warping, acoustic modeling using hidden Markov models, statistical language modeling, search algorithms in large vocabulary continuous speech recognition, components in text-to-speech systems, architecture and components in spoken dialog systems. Prerequisites: CS5343. (3-0) T

CS 6396 (CE 6308) Real Time Systems (3 semester hours) Introduction to real-time applications and concepts. Real-time operating systems and resource management. Specification and design methods for real-time systems. System performance analysis and optimization techniques, task assignment and scheduling, real-time communication, case studies of real-time operating systems. Prerequisite: CS 5348 or equivalent. (3-0) Y

CS 6397 (CE 6397) Synthesis and Optimization of High-Performance Systems (3 semester hours) A comprehensive study of the high-level synthesis and optimization algorithms for designing high performance systems with multiple CPUs or functional units for critical applications such as Multimedia, Signal processing, Telecommunications, Networks, and Graphics applications, etc. Topics including algorithms for architecture-level synthesis, scheduling, resource binding, real-time systems, parallel processor array design and mapping, code generations for DSP processors, embedded systems and hardware/software codesigns. Prerequisite: CS 5343 (3-0) T

CS 6398 (CE 6398, EE 6398) DSP Architectures (3 semester hours) Typical DSP algorithms, representation of DSP algorithms, Data-graph, FIR filters, Convolutions, Fast Fourier Transform, Discrete Cosine Transform, Low power design, VLSI implementation of DSP algorithms, implementation of DSP algorithms on DSP processors, DSP applications including wireless communication and multimedia. Prerequisites: CS 5343. (3-0) T

CS 6399 (CE 6399) Parallel Architectures and Systems (3 semester hours) A comprehensive study of the fundamentals of parallel systems and architecture. Topics including parallel programming environment, fine-grain parallelism such as VLIW and superscalar, parallel computing paradigm of shared-memory, distributed-memory, data-parallel and data-flow models, cache coherence, compiling techniques to improve parallelism, scheduling theory, loop transformations, loop parallelizations and run-time systems. Prerequisite: CS 5348. (3-0) T

CS 6V81 (SE 6V81) Special Topics in Computer Science (1-9 semester hours) Topics vary from semester to semester. May be repeated for credit as topics vary. ([1-9]-0) S

CS 7301 (SE 7301) Recent Advances in Computing (3 semester hours) Advanced topics and publications will be selected from the theory, design, and implementation issues in computing. May be repeated for credit as topics vary. Prerequisite: Consent of the instructor. (3-0) Y

CS 8V02 (SE 8V02) Topics in Computer Science (1-6 semester hours) (May be repeated to a maximum of 9 hours.) ([1-6]-0) S

CS 8V07 (SE 8V07) Research (1-9 semester hours) Open to students with advanced standing subject to approval of the graduate adviser. ([1-9]-0) S

CS 8V98 (SE 8V98) Thesis (3-9 semester hours) (May be repeated for credit.) ([3-9]-0) S

CS 8V99 (SE 8V99) Dissertation (3-9 semester hours) (May be repeated for credit.) ([3-9]-0) S

Software Engineering Course Descriptions:

SE 5354 (CE 5354, CS 5354) Software Engineering (3 semester hours) Formal specification and program verification. Software life-cycle models and their stages. System and software requirements engineering; user-interface design. Software architecture, design, and analysis. Software testing, validation, and quality assurance. Corequisite: CS 5343 (CS 5343 can be taken before or at the same time as CS 5354) (3-0) S

SE 5V81 (CS 5V81) Special Topics in Computer Science (1-9 semester hours) Selected topics in Computer Science. (May be repeated to a maximum of 9 credit hours.) ([1-9]-0) S

SE 6354 (CE 6354, CS 6354) Advanced Software Engineering (3 semester hours) This course covers advanced theoretical concepts in software engineering and provides an extensive hands-on experience in dealing with various issues of software development. It

involves a semester-long group software development project spanning software project planning and management, analysis of requirements, construction of software architecture and design, implementation, and quality assessment. The course will introduce formal specification, component-based software engineering, and software maintenance and evolution. Prerequisite: CS 5354 (or equivalent) and knowledge of Java (3-0) S

SE 6356 (CS 6356) Software Maintenance, Evolution, and Re-Engineering (3 semester hours) Principles and techniques of software maintenance. Impact of software development process on software justifiability, maintainability, evolvability, and planning of release cycles. Use of very high-level languages and dependencies for forward engineering and reverse engineering. Achievements, pitfalls, and trends in software reuse, reverse engineering, and re-engineering. Prerequisite: CS 5354. (3-0) Y

SE 6357 (CS 6357) Software Quality Assurance and Metrics (3 semester hours) Concepts of the pervasive system attributes: reliability, efficiency, maintainability, reusability, etc. Software complexity and measures. Software process measures, product measures and resource measure. Validation of software measures. Software measures and measurement theory. Measuring, monitoring and controlling reliability. Supporting tools. Prerequisite: SE 5354. (3-0) Y

SE 6359 (CS 6359) Object-Oriented Analysis and Design (3 semester hours) Analysis and practice of modern tools and concepts that can help produce software that is tolerant of change. Consideration of the primary tools of encapsulation and inheritance. Construction of _software-ICs_ which show the parallel with hardware construction. Prerequisites: SE 5354 and either CS 5335 or CS 5336. (3-0) S

SE 6360 (CS 6360) Database Design (3 semester hours) Methods, principles, and concepts that are relevant to the practice of database software design. Database system architecture; conceptual database models; relational and object-oriented databases; database system implementation; query processing and optimization; transaction processing concepts, concurrency, and recovery; security. Prerequisite: CS 5343. (3-0) S

SE 6361 (CS 6361) Requirements Engineering (3 semester hours) System and software requirements engineering. Identification, elicitation, modeling, analysis, specification, management, and evolution of functional and non-functional requirements. Strengths and weaknesses of different techniques, tools, and object-oriented methodologies. Interactions and trade-offs among hardware, software, and organization. System and sub-system integration with software and organization as components of complex, composite systems. Transition from requirements to design. Critical issues in requirements engineering. Prerequisite: SE 5354. (3-0) S

SE 6362 (CS 6362) Software Architecture and Design (3 semester hours) Concepts and methodologies for the development, evolution, and reuse of software architecture and design, with an emphasis on object-orientation. Identification, analysis, and synthesis of system data, process, communication, and control components. Decomposition, assignment, and composition of functionality to design elements and connectors. Use of non-functional requirements for analyzing trade-offs and selecting among design alternatives. Transition from requirements to software architecture, design, and to implementation. State of the practice and art. Prerequisite: SE 5354. (3-0) S

SE 6367 (CE 6367, CS 6367) Software Testing, Validation, and Verification (3 semester hours) Methods for evaluating software for correctness, performance and reliability including code inspections, program proofs and testing methodologies. Formal and informal

proofs of correctness. Code walkthroughs, code inspections and their role in software verification. Unit and system testing techniques, testing tools and limitations of testing. Statistical testing, reliability models and performance measurement techniques.

Prerequisite: CS 5354. (3-0) Y

SE 6370 (CS 6370) Information Systems Engineering (3 semester hours) Study of characteristics, analysis and synthesis of information systems in industrial, business, and governmental organizations. Building conventional information systems through requirements modeling and analysis, design, and implementation. Approaches and issues in engineering and re-engineering intelligent, cooperative, and distributed information systems. Prerequisite: CS 6360. (3-0) Y

SE 6387 (CS 6387) Computer-Aided Software Engineering (3 semester hours) Tools for development, maintenance, evolution and reuse of software. Development, selection, use, and management of such tools. Traditional and emerging methodologies, including structured systems methodologies and knowledge-based approaches to software development. Opening and closing CASEs: benefits, pitfalls, and critical issues.

Prerequisite: CS 5354. (3-0) Y

SE 6388 (CS 6388) Software Project Planning and Management (3 semester hours) Techniques and disciplines for successful management of software projects. Planning, scheduling, tracking, cost and size estimation, risk management, configuration management and version control. Identification, definition, management, and optimization of software engineering processes. Benefits and pitfalls of both conventional and emerging technologies. Prerequisite: CS 5354. (3-0) Y

SE 6389 (CS 6389) Formal Methods and Programming Methodology (3 semester hours) Formal techniques for building highly reliable systems. Use of abstractions for concisely and precisely defining system behavior. Formal logic and proof techniques for verifying the correctness of programs. Hierarchies of abstractions, state transition models, Petri Nets, communicating processes. Operational and definitional specification languages. Applications to reliability-critical, safety-critical, and mission-critical systems, ranging from commercial computer communication systems to strategic command control systems. Prerequisite: CS 5354. (3-0) Y

SE 6V81 (CS 6V81) Special Topics in Computer Science (1-9 semester hours) Topics vary from semester to semester. May be repeated for credit as topics vary. ([1-9]-0) S

SE 7301 (CS 7301) Recent Advances in Computing (3 semester hours) Advanced topics and publications will be selected from the theory, design, and implementation issues in computing. May be repeated for credit as topics vary. Prerequisite: Consent of the instructor. (3-0) Y

SE 8V02 (CS 8V02) Topics in Computer Science (1-6 semester hours) (May be repeated to a maximum of 9 hours.) ([1-6]-0) S

SE 8V07 (CS 8V07) Research (1-9 semester hours) Open to students with advanced standing subject to approval of the graduate adviser. ([1-9]-0) S

SE 8V98 (CS 8V98) Thesis (3-9 semester hours) (May be repeated for credit.) ([3-9]-0) S

SE 8V99 (CS 8V99) Dissertation (3-9 semester hours) (May be repeated for credit.) ([3-9]-0) S

Department of Computer Science

Ph.D. Qualifying Examination Policy

- The written qualifying examination tests for breadth.
- The written Ph.D. qualifying exam will be based on material covered in the 5 core classes that the Ph.D. student must complete to satisfy the Ph.D. core requirement (i.e., one of our MS-CS or MS-CS-SE cores).
- It will consist of five parts corresponding to the 5 core areas; each part will be 90-150 minutes.
- Exams will be scheduled shortly after final exams for the corresponding core classes. All 5 parts must be completed within 1-3 long semesters; it is highly recommended that exams are taken during the same semester that the student is taking the corresponding core class. At least one exam must be taken each long semester until the student completes the qualifying exam.
- The Ph.D. committee in consultation with faculty will define "exam topics" for each core class. These become the materials the students will be examined on.
- Possible outcomes for each part of the exam are: pass, marginal performance, fail. A pass implies that the student will not be re-tested in that part in the future; a fail means that the student should retake the exam; a marginal performance implies that a decision will be made after the results in the other 4 parts are available.
- Possible outcomes of the overall qualifying exam are: Pass, conditional pass (with recommendation for some corrective action - e.g., take a specific class), conditional fail (student gets a second chance to take exam - all or parts), fail (student is dropped from PhD program). A conditional pass can not require a second qualifier (or parts of) - that is reserved for the conditional fail. A conditional pass will be changed to a pass, conditional fail, or fail decision once the requirements specified in the corrective action can be evaluated. The possible outcomes for a student taking the exam for the second time are: pass, pass with conditions, fail.
- Part Time Students have up to 5 long semesters to complete the exams.

Additional Rules

- A "Pass" in the overall Qualifying exam requires 4 "Pass" and one "Marginal" (or better) grades in the individual core class exams. Students that are on track for an overall "Pass" should continue taking exams on the remaining core classes.
- Students that are not on track for an overall "Pass" (i.e., have "Fail" and/or multiple "Marginal" grades in the individual class exams) are in the "Conditional Fail" category; they need to take exams in the remaining core classes and retake exams that were not passed; each exam may be repeated only once – the second grade overwrites the first.

- A student remains in the “conditional fail” category until either (a) the requirements for an overall “Pass” are met; then the student gets an overall “Pass”, or (b) it is impossible to meet the requirements for an overall “Pass” (e.g. a second “Fail” grade in an individual class exam, etc.); then the student receives an overall “Fail” (i.e. the student is dropped from the Ph.D. Program).
- Students that need to retake an exam must do so within a year of the original exam (but must take at least one exam each long semester). Students that need to retake one or more exams will be allowed one additional long semester to complete all exams.

Note: The three semester (or 5 for part-time students) limit for taking the 5 exams still applies. If a student is allowed an additional semester to retake exams, it is possible to shift a first-time exam to the additional semester by petition to the PhD committee. However, since all exams must be completed by the end of the additional semester, the student will not have a “second” chance at such an exam. Because of the serious consequences, a petition to shift “first-time” exam(s) into an additional semester requires a signed statement by the student and his/her advisor that the implications of a shift are understood.

- Students that fail to appear for an exam they sign-up for and/or do not take exams as specified by the policies will receive a grade of “Fail” for that exam (or some exam(s) if it is not clear which exam(s) was missed).
- Students that Fail the overall QE will be allowed to register for one additional long semester (and Summer if included). They can not take QE exams in CS, defend proposals, dissertations, etc. during that semester (or during an included Summer semester).

Track/Major Changes within the CS Department:

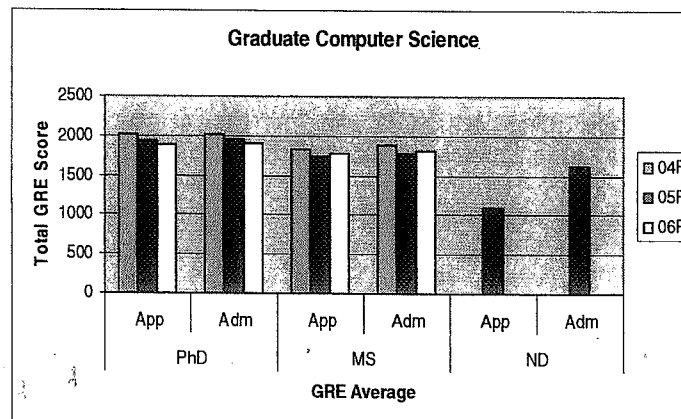
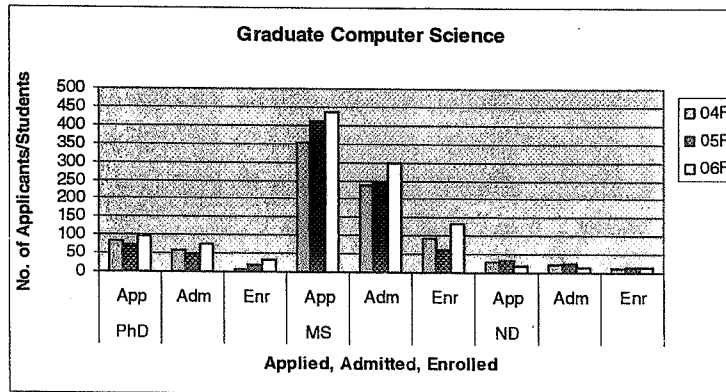
- The QE policy applies uniformly to all the doctoral degrees offered by the CS department (PhD-CS and PhD-SE at present). A change in the MS-track/major (which is the core requirement in the PhD degree plan and the base for the Qualifying exams) while in the midst of taking qualifying exams is not encouraged as it may result in the student taking more than 5 exams. Note that passing the QE as a whole does not restrict the student in the choice of advisor/topic when it comes to the PhD dissertation.
- In case of a track/major change, the student must be in good standing with respect to the QEs taken in the previous track (i.e., “passing”); the student needs to take all the required exams for the new track/major. An overall “Pass” requires “Pass” grades in at least 2/3 of the exams and “Marginal” grades in the rest. (Any exam in which the student received a “Fail” grade must be repeated; if a total of 6-8 distinct exams are taken, then 4 “Pass” and

2 "Marginal" or better result in an overall "Pass"; if 9-11 exams are taken, then 6 "Pass" and 3 "Marginal" or better is the overall "Pass" requirement).

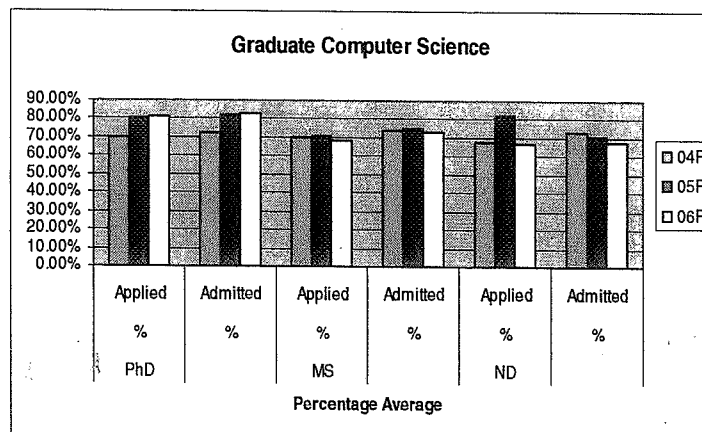
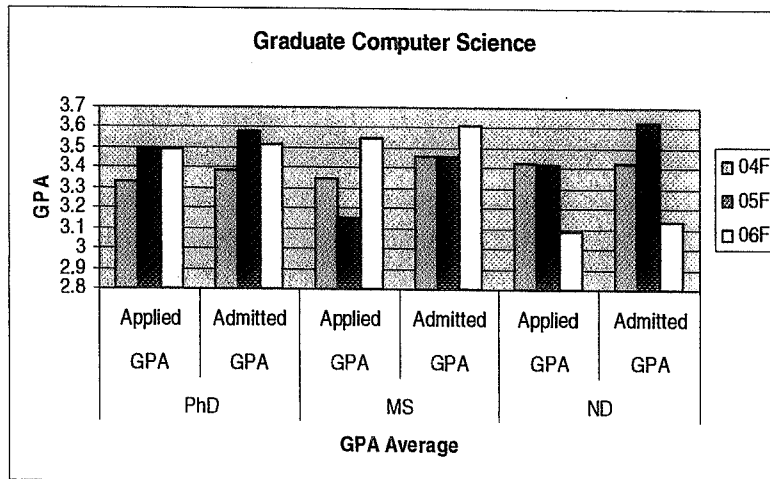
Rules for MS Students

MS students that have been admitted to the Ph.D. program for the next semester (e.g. MS students in Fall 2004 that get admission to Ph.D. for Spring 2005) will be allowed to take qualifying exams during the current semester (e.g. in December 2004). If they elect to do so, they need to complete the qualifiers in 3 (5 for part-time) long semesters; all other rules apply as well. The effect of a "Fail" on the overall qualifying exam for MS students is that they will not be admitted to the PhD program (can apply but the QE grades will be part of the file considered by the Admissions Committee).

To allow for special cases, a tenure-track faculty member can submit a written petition to the Ph.D. committee to request that an MS student be allowed to take qualifying exams. The student will be allowed to take qualifying exams (again under the same rules that apply to PhD students) if the petition is approved by the PhD committee.

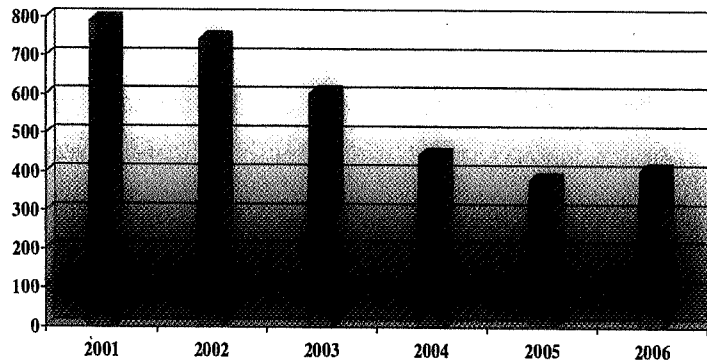


Appendix X



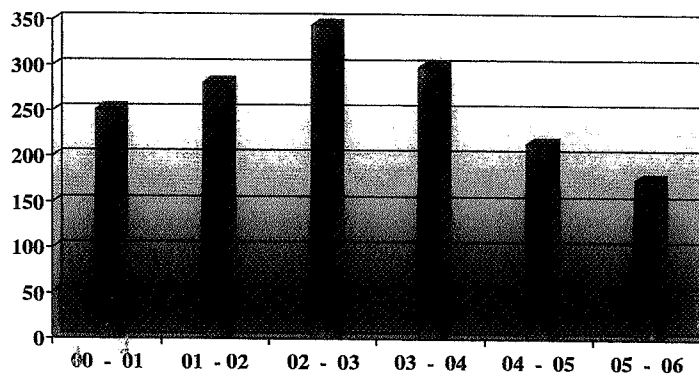
Appendix X

M.S. Enrollment



2001	2002	2003	2004	2005	2006
789	741	603	444	379	406

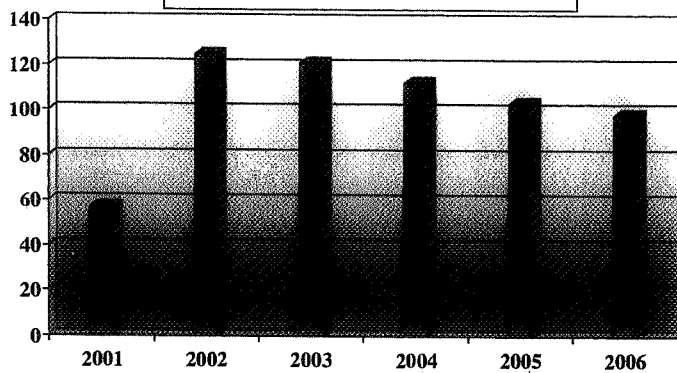
M.S. Degree Production



00 - 01	01 - 02	02 - 03	03 - 04	04 - 05	05 - 06
251	281	344	298	215	175

Appendix XI

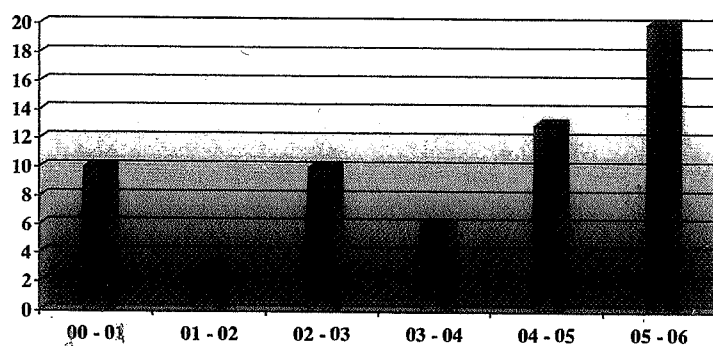
Ph.D. Enrollment *



2001	2002	2003	2004	2005	2006
57	125	121	112	103	98

* Students earning doctoral hours (received M.S. equivalent)

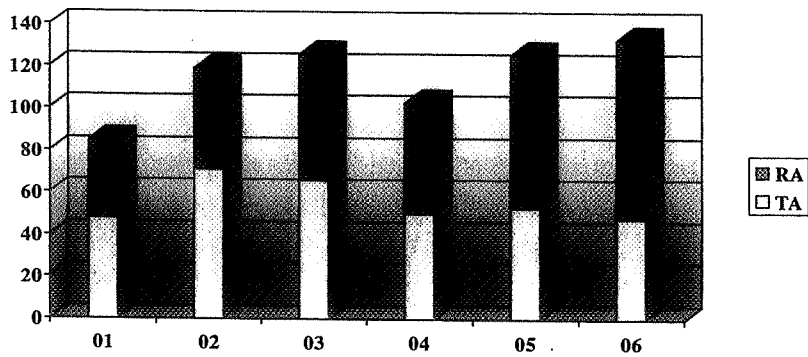
Ph.D. Degree Production



00 - 01	01 - 02	02 - 03	03 - 04	04 - 05	05 - 06
10	3	10	6	13	20

Appendix XI

TA/RA Statistics



Fall	01	02	03	04	05	06
TA	48	71	66	50	53	48
RA	37	48	60	53	73	85
Total	85	119	126	103	126	133

TA/RA MONTHLY STIPEND

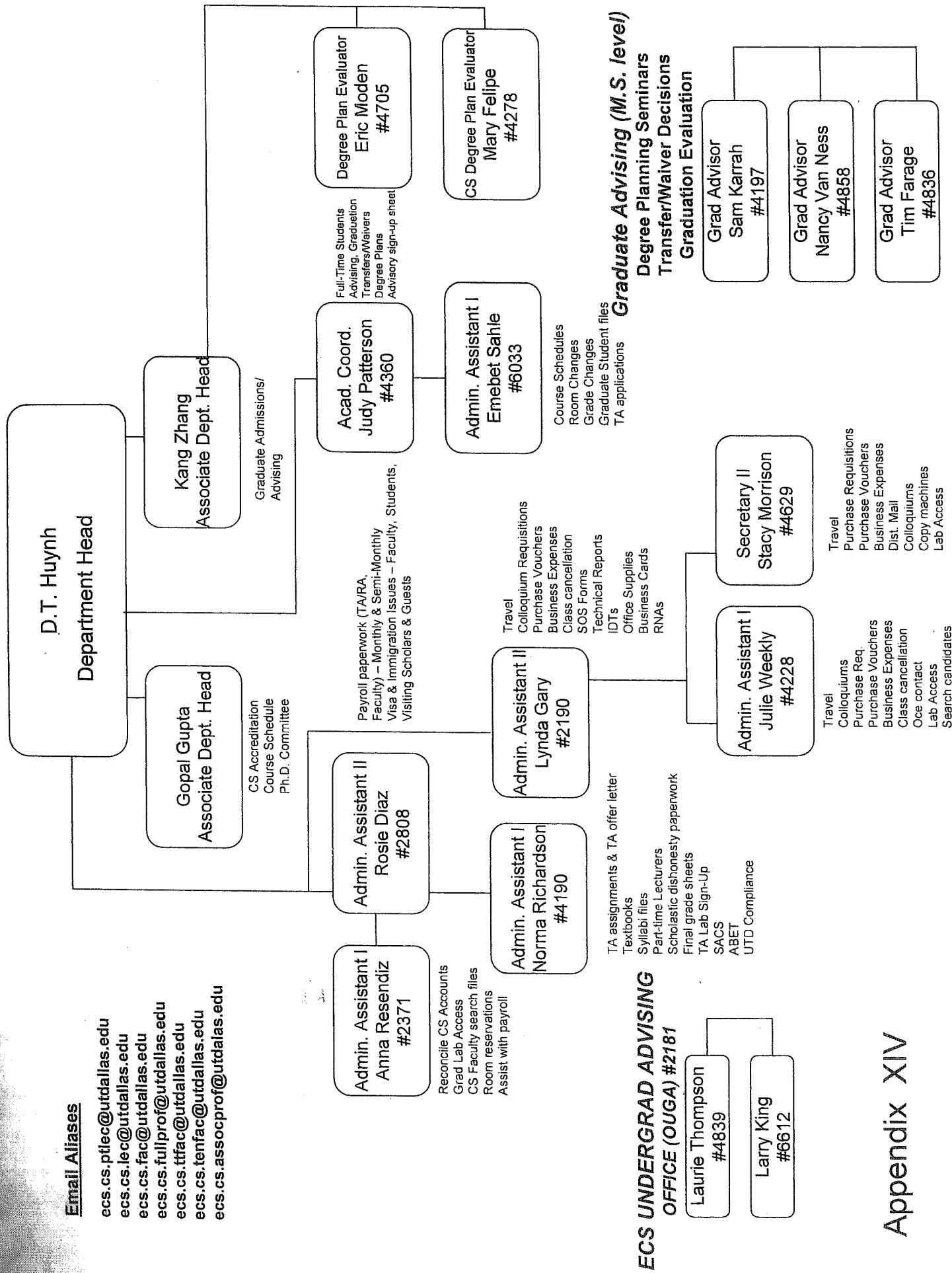
	01	02	03	04	05	06
L1	1,111	1,150	1,295	1,600	1,950	1,950
L2	1,400	1,450	1,495	1,750	2,000	2,000

EMPLOYMENT SURVEY ON PHD GRADUATES IN CS PROGRAM FOR ACADEMIC YEAR 2005-2006

	Name at UTD	Title of Dissertation	ADVISOR	Present Job	Employer
1	Li, Chuanjun	Efficient Pattern Discovery in Multi-Attribute Motion Streams	Prabhakaran	Asst. Prof.	Brown University
2	Li, Ming	Interference Aware QOS Strategies in IEEE 802.11 Wireless Networks	Prabhakaran	Asst. Prof	California State Univ.
3	Liu, Jian	Pattern-Directed Code Synthesis for Component Based Software Eng	Farokh Bastani	SW Eng.	PROS
4	Musunuri, Ravi	Protocols for Convergence and Load Balancing in Inter-Domain Routing	Jorge Cobb	Technical CS Staff	Cisco
5	Qian, Lie	Multicast Media Traffic Over Internet with Quality of Service	Yuke Wang	Asst. Prof.	Oklahoma State University
6	Simon, Luke	Extending Logic Programming with Conduction	Gopal Gupta	Sr. SW Eng.	Metallect
7	Song, Guanglei	A Graphical Framework for Model Management	Kang Zhang	SW Meta Data Eng.	Meta Integration
8	Awad, Mamoun	Effective Data Mining for Instruction Detection and WWW Prediction Applications	Latifur Khan	Asst.Prof.of SW Eng.	College of Info & Technology
9	Chen, Keven	Efficient Network Architectures and Switch Fabrics for Packet Routing	Edwin Sha	Asst.Prof	Wright State University
10	Gandham, Sashidhar	Near Optical Algorithms for Link scheduling, Routing and Positioning of Mobile Base Stations in Wireless Stations in Wireless Sensor Networks	Ravi Prakash	Technical CS Staff	XG Technology
11	Kuppa, Srikanth	Characterizing the Expected Performance of IEEE 802.11 DCF and its QOS enhancements	Ravi Prakash	Technical CS Staff	Cisco
12	Liu, Meilin	Nest-Loop Transformation Techniques Considering Timing and Memory Optimization for Embedded Systems	Edwin Sha	Asst. Prof.	Wright State University
13	Luo, Jun	On some Geometric Optimization Problems with Applications in Manufacturing , Graph Visualization and Structure Biology	Ovidiu Daescu	Post Doc	Utrecht University
14	Mohsin, Mansoor	Reliable Communication in Mobile AdHoc networks	Ravi Prakash	Technical CS Staff	Microsoft
15	Palmer, James D	Optimization Problems in Weighted Regions	Ovidiu Daescu	Asst. Prof	Northern Arizona University
16	Qian, Yu	Fast and Accurate Pattern Discoveries in Spatial, Image, and Biological Data	Kang Zhang	Sr. Research Assoc.	UT Medical Center
17	Sitaraman, Shriranjani	Algorithms to Enable Forensic Analysis of Computer and Network Intrusions	Venkatesan	SW Eng.	Veritas
18	Dai, Lirong	Formal Analysis Framework: An Aspect-Oriented Architectural Framework	Kendra Cooper	Asst. Prof.	Seattle Univ.
19	Kong, Jun	Foundation and Applications fo Visual Languages	Kang Zhang	Asst. Prof.	North Dakota State University
20	Novischi, Adrian	Semantic Disambiguation of Wordnet Glosses and Lexical Chains on Extended Wordnet	Dan Moldovan	SW Eng.	Language Computer Corp.
21	Tang, Yiyan	Memory Reference Reduction and Exploit Parallelism for DSP and Communication Algorithms and Systems Implementations on Digital Signal Processor	Yuke Wang	DSP Eng.	3DSP Corp.

Email Aliases

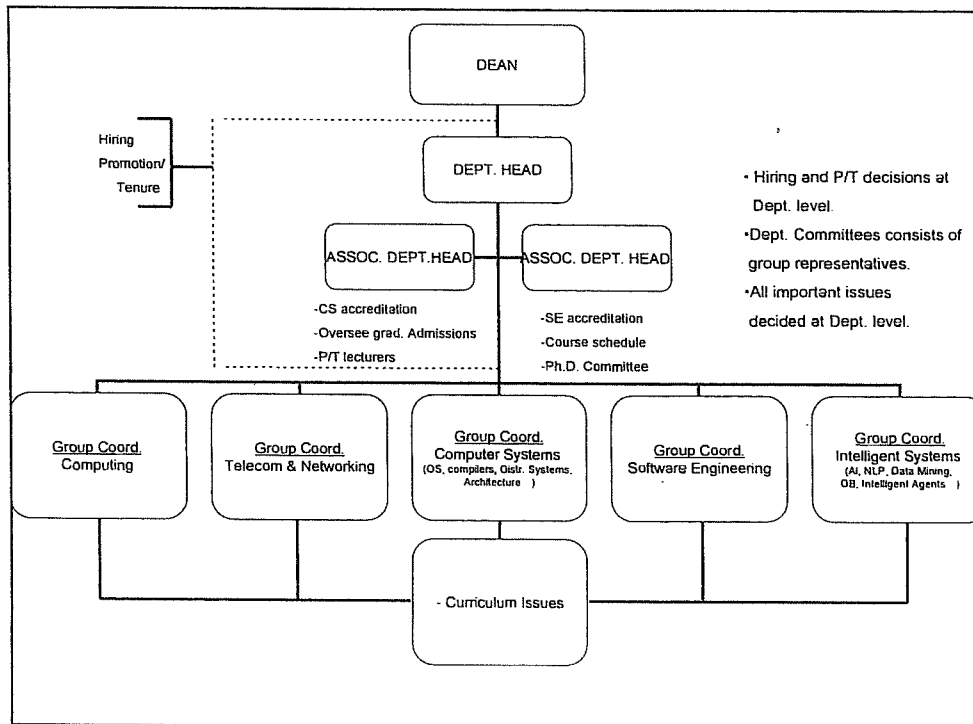
ecs.cs.ptlec@utdallas.edu
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 ecs.cs.fac@utdallas.edu
 ecs.cs.fullprof@utdallas.edu
 ecs.cs.tffac@utdallas.edu
 ecs.cs.tenfac@utdallas.edu
 ecs.cs.assocprof@utdallas.edu



ECS UNDERGRAD ADVISING OFFICE (OUGA) #2181

Laurie Thompson #4839
 Larry King #6612

Group Structure



Group Membership

- Faculty member may join up to 2 groups (voting: ($\frac{1}{2} + \frac{1}{2}$) or ($1 + 0$))
 - Faculty members have the right to stay independent. (Junior fac. members are strongly encouraged to join a group.)
 - Every year a faculty member may elect to join another group before fall semester. (If switch in middle of year, consult Dept. Head)

Appendix XIV

Group Membership

- Group coordinator: (must be tenured)
 - elected by group (by the end of Spring)
 - 2-year term (beginning Fall)
(1 year off)

Group Activities/Responsibilities

- Group Size: at least 5 (full-vote equiv.)
 - Grace period of 2 years if below 5
- New groups need approval of faculty
- Groups will be reviewed every 4 years
(need faculty approval to continue)
- Groups may change name if approved by faculty

Appendix XIV

Group Activities/Responsibilities

- Search:
 - Dept. search committee consists of members from groups
(Dept. Head appoints chair in consultation with committee)
 - Group Coordinators & Dept. Head meet with Dean about open faculty positions
 - Dept. search committee and groups will review search files and invite candidates for interview.
(If there is disagreement between committee and groups, faculty will decide.)

Group Activities/Responsibilities

- Search (con't.)
 - Groups make recommendations to faculty
(Approved by $\frac{2}{3}$ group members)
(Tenured fac. cand: tenured faculty votes ($\frac{2}{3}$), then full faculty votes)
- Curriculum
 - Group submits proposal through dept. curriculum committee to faculty for approval
 - Group may propose new course/track (Tracks should not belong to groups)
 - MS Tracks will be reviewed every 2 years
(need faculty approval to continue)

Appendix XIV

Group Activities/Responsibilities

- Annual Review:
 - Each group nominates a full professor to dept. review committee
 - Dept. review committee & Dept. Head make recommendations to Dean
 - Dept. review committee members have 2-year term

Group Based Committees

- Search Committee
- Graduate Curriculum Committee
- By-Laws Committee
- Annual Review Committee
- PhD Committee

Appendix XIV

Faculty Salary

	Minimum	Maximum	Average
Full Prof.	108,000	142,800	125,600
Assoc. Prof.	83,300	106,100	93,000
Assist. Prof.	83,600	92,000	86,300

CURRICULUM VITAE

Farokh B. Bastani

Computer Science Department
University of Texas at Dallas
M/S EC 31
Richardson, TX 75083-0688

Phone: (972) 883-2299

Fax: (972) 883-2349

E-Mail: bastani@utdallas.edu

Education

Ph.D., Computer Science, University of California, Berkeley, 1980
M.S., Computer Science, University of California, Berkeley, 1978
B.Tech., Electrical Engr., Indian Inst. of Tech., Bombay, 1977

Research Interests

AI-Based Automated Software Synthesis and Testing
Embedded Real-Time Process-Control and Telecommunications Systems
Formal Methods and Automated Program Transformation
High-Assurance Autonomous Decentralized Systems
High-Confidence Software Reliability, Safety, and Security Assurance
Inherently Fault-Tolerant and Self-Stabilizing Distributed Systems
Modular Parallel Programs
Tele-Collaborative Systems

Professional Experience

September 1997 - Present

Professor, Computer Science Department,
University of Texas at Dallas

May 2000 - Present

Director, Embedded Software Center (ESC),
University of Texas at Dallas

September 1997 - May, 2000

Director, Center for Application-Specific Systems
and Software Engineering (CASSE),
University of Texas at Dallas

- 2 -

September 1993 - August 1997
Professor, Department of Computer Science,
University of Houston

August 1993 - July 1994
Visiting Scholar, Dept. of Computer Science,
Michigan State University

June 1986 - August 1993
Associate Prof., Department of Computer Science,
University of Houston

August 1986 - July 1987
Visiting Scholar, Dept. Elect. Eng. and Comp. Sciences,
University of California, Berkeley

Sept. 1980 - May 1986
Assistant Prof., Department of Computer Science,
University of Houston

June 1978 - August 1980
Research Assistant, Elect. Research Lab.,
University of California, Berkeley

PUBLICATIONS

- * M. Gupta, J. Fu, F.B. Bastani, L. Khan, and I.-L. Yen, "Rapid goal-oriented automated software testing using MEA-graph planning," To appear in the *Software Quality Journal*, Vol. 15, No. 2, June 2007.
- * J. He, T. Gao, W. Hao, I.-L. Yen, and F. Bastani, "A flexible content adaptation system using a rule-based approach," *IEEE Trans. on Knowledge Engineering and Data Engineering*, Vol. 19, No. 1, Jan. 2007, pp. 127-140.
- * V.U.B. Challagulla, F.B. Bastani and I.-L. Yen, "A unified framework for defect data analysis using the MBR technique," *Proc. 18th IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI-2006)*, Arlington, VA, Nov. 2006, pp. 39-46.
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- *Developing Advanced Middleware for Convergence of IT and Telecommunications*, F.B. Bastani (PI), I.-L. Yen (Co-PI), G. Dattatreya (Co-PI), and L. Khan (Co-PI), Alcatel USA, Dec. 15, 2004 - Jan. 15, 2005, 2004, \$227,500.
- *Developing Advanced Middleware for Convergence of IT and Telecommunications - Part II*, F.B. Bastani (PI) and I.-L. Yen (Co-PI), Alcatel USA, Sep. 1, 2004 - Jan. 15, 2005, \$40,500.
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- IEEE Computer Society Meritorious Service Certificate, 1992.
- IEEE Computer Society Certificate of Appreciation, 1994.
- IEEE Computer Society Golden Core Award, 1996.
- IEEE Computer Society Meritorious Service Certificate, 2001.

TEACHING AND RESEARCH SUPERVISION

Courses Taught

Introduction to Computer Science (first year)
 Data Structures (second year)
 Fundamental of Operating Systems (fourth year)
 Fundamentals of Software Engineering (fourth year)
 Embedded Computer Systems (fourth year)
 Software Engineering (graduate)
 Software Reliability Engineering (graduate)
 Software Quality Assurance and Metrics (graduate)
 Formal Methods and Programming Methodology (graduate)
 Operating Systems (graduate)
 Fault-Tolerant Computing Systems (graduate)
 Self-Stabilizing Systems (graduate)
 Real-Time Systems (graduate)
 Advanced Software Engineering (advanced graduate)
 Advanced Operating Systems (advanced graduate)
 Neural Computers (advanced graduate)
 Program Transformation Systems (advanced graduate)
 AI-Based Software Engineering (advanced graduate)

Courses Developed

Fundamentals of Software Engineering (fourth year)
 Embedded Computer Systems (fourth year)
 Software Engineering (graduate)
 Software Reliability Engineering (graduate)
 Fault-Tolerant Computing Systems (graduate)
 Self-Stabilizing Systems (graduate)
 Formal Methods and Programming Methodology (graduate)
 Real-Time Systems (graduate)
 Advanced Software Engineering (advanced graduate)
 Advanced Operating Systems (advanced graduate)
 Neural Computers (advanced graduate)
 Program Transformation Systems (advanced graduate)
 AI-Based Software Engineering (advanced graduate)

Research Supervision

Primary supervisor in over sixty M.S. theses and twelve Ph.D. dissertations in Computer Science in software engineering, distributed/parallel processing, and fault-tolerant computing.

Ph.D. Dissertations Chaired

- Jian Liu, *Pattern-Directed Code Synthesis for Component Based Software Engineering*, Aug. 2006.

- Dongfeng Wang, *Systematic Development of Process-Control Systems for Ultra-High Dependability Assurance Based on Independently Developable End-User Assessable Logical (IDEAL) Aspects*, Aug. 2005.
- Sung Joong Kim, *Foundation for Composable Microservices for Rapid Synthesis of Highly Reliable Software Systems*, Aug. 2004.
- Victoria Hilford, *New Performance, Fault Tolerance, and Reliability Approaches in Dealing with the Information Explosion*, Aug. 1998.
- Anouar Jamoussi, *Accelerated Test Data Generation for Safety-Critical Software Systems*, December 1997.
- Bojan Cukic, *Transformational Approach to Software Reliability Assessment*, August 1997.
- Rumi M. Dubash, *An AI-Based, Decentralized Approach to Process-Control and Planning with Massively Parallel Systems*, May 1993.
- Saniya Ben-Hassen, *Architecture for Fault-Tolerant Execution of Linda Programs*, May 1993.
- Taghreed M. Al-Marzooq, *Programming Abstract Data Types for Massively Parallel Systems*, May 1993.
- Yiwei Chen, *Multi-Dendrite Neurons for Artificial Neural Networks*, December 1992.
- Yi Zhao, *A Self-Stabilizing Approach to Byzantine Agreement*, December 1992.
- Dar-Ren Leu, *Abstract Data Types for Massively Parallel SIMD Computers*, August 1989.
- Ing-Ray Chen, *An AI-Based Architecture of Self-Stabilizing Fault-Tolerant Distributed Process-Control Programs and its Analysis*, December 1988.

M.S. Theses Chaired

- Shilpa Jain, *Automated Software Testing*, May 2005.
- Mihir Anil Vaidya, *A Framework for Multimodal Rich Presence Systems*, May 2004.
- Pallavi Striram, *Automated Glue Code Synthesis Using Package Specific Languages*, Dec. 2003.

- Ramachandra Bachala, *MPLS Path Restoration: Flow Classification Extensions*, Dec. 2002.
- Venkata U.B. Challagulla, *Software Quality Assessment through Defect-Based Testing and Reliability Analysis*, May 2002.
- Marcus Svantesson, *Setting up Group Communication Patterns using SIP*, May 2002.
- Mario Salvatore Antonio Christiansson, *High Assurance Wrappers for Commercial Off-the-Shelf (COTS) Components*, May 2000.
- Henrik Persson *A Relational Architecture for Highly Robust Parsers*, May 2000.
- Anders Palsson, *Run-Time Execution Support for Relational Programming*, May 1999.
- Christoffer Bergman, *Language Constructs for Relational Programming*, May 1999.
- Pinki Sinha, *Design and Evaluation of Set Constructs for Achieving Reliable Software*, May 1998.
- Sudhir Mahalingam, *Design and Implementation of a Framework for N-Version Fault-Tolerant Software*, May 1998.
- Kai Chung Lee, *Software Reliability Models Based on Fault Size Information*, December 1997.
- Sreepama Kundu, *Implementation and Performance Analysis of N-Modular Redundancy Protocols*, December 1997.
- Jagannath Ramanujam, *An Object-Oriented Framework for Fault-Tolerant Protocols*, December 1997.
- Richard Hand, *An Enhancement to Orthogonal Defect Classification for Improved Risk Management*, August 1997.
- Ridhdish Amin, *Symbolic Execution -- A System for Symbolic Evaluation of C Programs*, May 1997.
- Yue Huang, *A Load Distribution System for the World Wide Web Server*, May 1996.
- Rong Cong, *An Interface Builder for Enhanced I/O in C*, Dec. 1994.
- Naveen Puttagunta, *VISUALPATHS: A Program Visualization Tool to Aid in Software Reliability Analysis*, August 1994.

- Vishwanath Kuruganti, *REVEALPATHS: A System to Generate Revealing Subdomains and Estimate the Failure Probability for C Programs*, August 1994.
- Rahul Aggarwal, *The Sherpa Interactive Travel Guide Tool (with Multimedia and Database Enhancements to the Sherpa Travel Guide Design Tool)*, May 1994.
- Annamalai Veerappan, *Sherpa System*, May 1994.
- Xudong Wu, *A Test Data Generator System*, December 1993.
- Lan Zhang, *A SIMD to MIMD Parallel Program Transformation System*, December 1993.
- Sriram Raghunathan, *Algorithms for Efficient Task Allocation in Large Scale Hypercubes*, August 1993.
- Chih Tang, *Distributed Simulation Algorithms*, August 1993.
- Andrea C., *Self-Stabilizing Algorithm for Solving Integer Programming Problems*, August 1993.
- Mark Cinque, *A Multimedia Conference Package for NeXTStations*, August 1993.
- Bojan Cukic, *Automatic Array Alignment for Multicomputers*, May 1993.
- Yizhen Li, *E_Conference: Multimedia Network Communication Software*, May 1993.
- Haiying Lu, *An X-Window Interface for Unix: Operating System*, May 1993.
- Raghu N. Debbad, *Techniques for Designing, Constructing, and Evaluating Graphical User Interfaces*, December 1992.
- Emanuele Mambelli, *NComp: Application of the Hopfield Neural Network Model to a Stereo Vision System*, August 1992.
- Charles Henry, *Design and Implementation of a Distributed Directoryless Extendible Hash File*, May 1992.
- Krishnamurthy Subramanian, *An Activity Manager for a Software Development Environment*, December 1991.
- Satish Kumar Ramaswamy, *Simulation of SIMD Parallel Programs*, December 1991.

- Joseph S.H. Peng, *Requirements Specification Editor for Distributed Collaborative System*, December 1991.
- Awez Imran Syed, *Design and Implementation of a C Program Browser*, December 1991.
- Viswanathan Venugopala, *An X-Window based User Interface Builder for C Program Input Operations*, December 1991.
- Sanjay P. Rattan, *X-Window based C Program Builder*, December 1991.
- Davis J. Liu, *Computer-Aided Software Engineering Design Tool*, December 1991.
- M. Shahzad Adil Khan, *Clock Synchronization in Distributed Operating Systems*, August 1991.
- Thirupathi Bollam, *Development of a Design Database for Decision Support Problems in a Concurrent Engineering Environment*, August 1991.
- Durairaj Elavarasan, *A Fault-Tolerant Replicated Storage System for Local Area Networks*, December 1990.
- Srivasan R. Puthukode, *Design and Implementation of an Efficient Fault-Tolerant Distributed Data Structure*, December 1990.
- Hui-I (Dora) Hsu, *A Knowledge-based Activity Manager for Collaborative Software Development*, May 1990.
- Atmaran Subramonia, *Design and Development of an X-Window based Information Consultant for a Distributed Collaborative System*, May 1990.
- Winghong Joseph Lee, *A Hypertext Storage Structure for a Distributed Collaborative System*, May 1990.
- Cristina Ip, *A Distributed Neural Network Simulator*, December 1989.
- Manjula Geethani Wickramaratne, *Character Recognition using Massively Parallel Algorithms*, August 1989.
- Ravindran Ramachandran, *Fault Tolerance issues for Distributed Systems in a MIMD Environment*, August 1989.
- Saniya Ben Hassen, *Neural Network Models: Comprehensive View and Case Studies*, December 1988.

- Harpreet Singh Dhaliwal, *Implementation of a Dynamically Distributed Process Network*, December 1988.
- Yi Zhao, *Byzantine Agreement - Algorithms and Applications*, December 1987.
- Man-Kai (Francis) Kam, *A Self-Stabilizing Ring Protocol for Load Balancing in Distributed Real-Time Process Control Systems*, December 1987.
- Theodore C. Law, *Dynamic Process Networks in Distributed Environments*, August 1986.
- Shu-Lain Agnes Ng, *A Distributed Implementation of a Process Network Controller*, August 1986.
- Chuan-Yuan Shih, *The Implementation and Evaluation of a Pascal Program Browser*, August 1986.
- Ju-En Teng, *An Experimental Evaluation of Maintenance Strategies for Servers in a Unix Local Area Network Environment*, August 1986.
- Hsueh-Yun Shyu, *Development of Remote Logon and Network-Wide Commands for a Local Area Network*, May 1986.
- Wen-Ruey (Helen) Ma, *A Mail Server and a Printer Server for a Unix Local Area Network*, May 1986.
- Victoria Zaghlouth, *The Network Shell and the Name Server in a Unix Network Environment*, May 1986.
- Vinod Kumar Reddy Kalla, *Automated Analysis of Axiomatic Specifications for a Goal Oriented Test Data Generator*, August 1985.
- Li-Ling Yen, *The Role of Parallel Processing in Application Programs*, August 1985.
- Ing-Ray Chen, *A Distributed File System in a Unix Network Environment*, August 1985.
- Phiet The Pham, *The Design and Implementation of a Pascal Program Browser*, August 1985.
- Anita Elizabeth Harris, *The Design and Implementation of a Window Management System*, December 1984.
- Yale Shen, *A Goal Oriented Test Data Generator for Abstract Data Type Modules*, December 1984.

- Jan-Jan Yen, *A Graphics Oriented Simulation Package for Analyzing Robotic Control Techniques*, August 1984.
- Hae-Luen (Helen) Ju, *An Automated Screen Interface Generator for Pascal Programs*, August 1984.
- Tuan-Huei Wang, *The Implementation of an Interactive Data Entry System for Pascal Programs*, December 1983.
- Chiao-Li Chao, *The Design and Implementation of a Preprocessor for Modular Pascal*, May 1983.
- Jui-Ling Li, *A Syntax Directed Text Editor for a Configuration Control System*, May 1983.
- Choa-Lin Chou, *A Software Tool for Configuration Control Management*, May 1983.

B.S. Honors Theses Chaired

- Yash Ranadive, *RFID: Applications, Security and Rich Presence*, May 2006.

Service

- Service to the department
 - Departmental Committees
 - Curriculum Committee (1980-1983)
 - Faculty Search Committee (1985-1986, 1988-1990, 1994-1997, 1997-2001)
 - Third year review committee (2003-2005)
 - Tenure review committee (1998-2001)
 - Promotion to Full Professor Committee (2004-2005)
 - Executive Committee (1989-1992, 1994-1997)
 - Equipment Committee (1990-1993, 2001-2003)
 - Coordinator, Software Engineering Group (2002-2004)
 - Department Bylaws Committee (2003-2007)
 - Ad hoc committee for studying Ph.D. qualifying examination rules (1988)
 - Chair of ad hoc committee for changing department bylaws (1989)
- Service to the college/university
 - Graduate Studies Committee (1985-1986)
 - College Government Committee (1991-1993)
 - Teaching Excellence Ad Hoc Committee (1991)

- Five Year Planning Committee (1998-1999).
- Search Committee for Chaired Professors (1998-1999). Analog Chair Search Committee (2006-2007)
- Research Committee (1999-2001).
- Ad Hoc Special Committee (1999).
- School Post-tenure review committee (2003-2004).
- School Reorganization Committee (2000-2001).
- School Advisory Committee (2001-2003).
- University Program Review Committee (2000-2001).
- University Reorganization Committee (2001).
- University Research Integrity Committee (2005-2006).
- University Committee on Qualifications (2005-2007).
- Service to the profession/academic discipline
- Editor-in-Chief, *IEEE Transactions on Knowledge and Data Engineering*, 1997-2000
- Emeritus Editor-in-Chief, *IEEE Transactions on Knowledge and Data Engineering*, 2001-present
- Editor for the *International Journal of Knowledge and Information Systems*, 1999-present
- Editor for the *International Journal on Artificial Intelligence Tools*, 1993-present
- Editor for the Springer-Verlag book series on *Knowledge and Information Management*, 2000-2006
- Special-Section Editor for *IEEE Transactions on Knowledge and Data Engineering*, 1994-1996
- Editor for *IEEE Transactions on Knowledge and Data Engineering*, 1992-1994
- Editor of *IEEE Technical Committee on Multimedia Computing Newsletter*, 1993-1995
- Editor for Oxford University Press, *Journal of High Integrity Systems*, 1993-1997
- Editor for *IEEE Transactions on Software Engineering*, 1988-1992
- Reviewer for NSF, DOE, and various journals and conferences
- Guest Editor of *IEEE Trans. Softw. Eng.* special issue on Software Reliability (Dec. 1985 and Jan. 1986 issues)
- Guest Editor of *IEEE Trans. Knowledge and Data Engineering* special issue on Self-Organizing Knowledge and Data Representation in Distributed Environments (Apr. 1992)
- Guest Editor of *IEEE Trans. Softw. Eng.* special issue on Software Reliability (Nov. 1993)
- Guest Editor of *Intl. Journal of Artificial Intelligence Tools* special issue on best papers from TAI'95, June 1996.
- Guest Editor of *Communications of the ACM* special issue on Software Engineering Tools and Techniques for High Assurance Systems, 1997

- Guest Editor of *International Journal of Artificial Intelligence Tools*, special issue on Recent Developments in AI Tools, 1996.
- Guest Editor of *IEEE Transactions on Knowledge and Data Engineering*, special issue in honor of Prof. C.V. Ramamoorthy, Jan. 1999
- Co-Guest Editor (with Y. Deog) of *International Journal of Software Engineering and Knowledge Engineering* special issue on Embedded Computer Systems, April 2002
- Member of IEEE-CS Technology Segment Committee on Software Technology, 1993
- Member of IEEE-CS Task Force on Multi-Media Computing, 1992-1993
- Member of IEEE-CS Publications Planning Committee, 1992-1993
- Member of IEEE-CS Tutorials and Conference Board, 1997-present
- Member of IEEE-CS Transactions Operations Committee, 1997-2000
- Member of IEEE Search Committee for the Editor-in-Chief of *IEEE Computer*, 2006.
- Member of IEEE Search Committee for the Editor-in-Chief of the *IEEE Transactions on Knowledge and Data Engineering*, 2003-2004.
- Chair of IEEE Search Committee for the Editor-in-Chief of the *IEEE Transactions on Software Engineering*, 1998-1999
- General Chair, 1999 *Intl. Conference on Tools with Artificial Intelligence*
- General Co-Chair, 1998 *Knowledge and Data Engineering Exchange Workshop*
- General Co-Chair, 1998 *Workshop on Multimedia Software Engineering*
- Program Committee Co-Chair, 1999 *Knowledge and Data Engineering Exchange Workshop*
- Program Committee Vice-Chair, 1999 *Intl. Symposium on Autonomous Decentralized Systems*
- Program Committee Co-Chair, 1998 *Intl. Symposium on Software Reliability Engineering*
- Program Committee Co-Chair, 1997 *Symposium on Reliable Distributed Systems*
- Program Chair, 1995 *Intl. Conf. on Tools with Artificial Intelligence*
- Program Co-Chair, *IEEE Symposium on Service-Oriented System Engineering*, 2005-2006.
- Vice Chair, 12th *Symposium on Reliable Distributed Systems*, 1993
- Vice Chair, 1994 *Intl. Conf. on Tools with Artificial Intelligence*
- Tutorial Chair, 1994 *Intl. Symp. on Software Reliability Engineering*
- Program Committee Member, *IEEE International Workshop on Collaborative Computing, Integration, and Assurance (WCICA)*, 2005-2006
- Program Committee Member, 2006 and 2007 *IEEE Intl. Conf. on e-Business Engineering (ICECE 2006)*
- Program Committee Member, 5th and 6th *Intl. Symp. on Autonomous Decentralized Systems*
- Program Committee Member, 15th and 17th *International Conference on Distributed Computing Systems*

- Program Committee Member, 3rd and 4th International Conference on Data Engineering
- Program Committee Member, 9th, 13th, 14th, 15th, 17th, 18th, and 20th Symposium on Reliable Distributed Systems
- Program Committee Member, 2nd, 5th, and 13th International Conference on Tools for AI
- Program Committee Member, 3rd, 5th, 6th, 7th, 8th, 10th, 11th, 12th, 13th, 15th, 16th, 17th (ISSRE 2006), and 18th (ISSRE 2007) IEEE International Symposium on Software Reliability Engineering
- Program Committee Member, 4th Int. Conference on Information and Knowledge Management
- Program Committee Member, 1993 Int. Symp. on Applied Computing
- Program Committee Member, 1994, 1995, 1996, and 1997 Int. Symp. on Applied Corporate Computing
- Program Committee Member, 1994 IEEE International Symposium on Parallel and Distributed Systems
- Program Committee Member, 2003 IEEE International Conference on Multimedia Expo (ICME)
- Program Committee Member, 1993 IEEE Workshop on Advances in Parallel and Distributed Systems
- Program Committee Member, 1st Intl. Work. on Evaluation and Evolution of Component Composition (EECC-2006), 2006 Program Committee Member, 8th Intl. Conf. on Stabilization, Safety, and Security of Distributed Systems (SSS 2006), 2006
- Program Committee Member, The Software Engineering Track at the 22nd Ann. ACM Symp. on Applied Computing (ACM SAC), 2007
- Program Committee Member, 2007 IEEE International Conference on e-Business Engineering (ICEBE-2007)
- Session Organizer, 2nd World Conf. on Integrated Design and Process Technology, 1996
- Organization Committee Member, 11th Symposium on Reliable Distributed Systems, 1992
- Steering Committee Member, IEEE Symposium on Service-Oriented System Engineering, 2005-2006
- Steering Committee Member, IEEE International Conference on Tools with Artificial Intelligence, 1996-present
- Steering Committee Member, Symposium on Application-Specific Software Engineering and Technology (ASSET), 1997-1999
- Steering Committee Member, IEEE Symposium on High Assurance Systems Engineering, 1996-2006
- Steering Committee Member, Knowledge and Data Engineering Exchange Workshop (KDEX), 1997-1998

- Session Chair, COMPSAC '80, SRDS '90, ICTAI '91, ISSRE '92, 1992 ICS, ICTAI '93, ICPADS '93, ICTAI '94, ICTAI '95, ICTAI '97, ISSRE '97, ISSRE '98, ISADS '99, 2006 C.V. Ramamoorthy Workshop on Advances in Computer Science and Engineering

Sergey Bereg

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USA

PROFESSIONAL AFFILIATION

Institute of Biomedical Sciences and Technology

EDUCATION

- **Ph.D. in Computer Science**, 1992.
Minsk Institute of Mathematics, Belarus.
Research areas: Computational Geometry, Geographic Information Systems, Data Structures, Robotics, Complexity Theory.
Thesis: Geometric minimum spanning trees and related problems.
- **M.S. in Computer Science**, 1985.
Ural State University, USSR.
Research area: Computer aided design of VLSI.
Thesis: Algorithms for trace routing of VLSI.
- **B.S. in Computer Science and Mathematics**, 1983.
Ural State University, USSR.
- **Physics-mathematics school N18** at Moscow State University, 1979.

EMPLOYMENT HISTORY

- 2002 - present, **Associate Professor**, University of Texas at Dallas.
- 2001 - 2002, **Visiting Professor**, Duke University.
- 1998 - 2001, **Research Associate**, University of British Columbia.
- 1994 - 1998, **Senior Scientist**, Ural State University, Russia.
- 1990 - 1994, **Assistant Professor**, Ural State University, Russia.

TEACHING EXPERIENCE

At University of Texas at Dallas

- CS6363 Design and Analysis of Computer Algorithms. fall 2004 (18), spring 2006 (24).
- CS6V81 Computational Biology and Geometry. fall 2003 (36).
- CS6V81 Computational Biology. fall 2005 (8).
- CS5343 Algorithm Analysis and Data Structures. fall 2002 (36), spring 2003 (21), spring 2004 (24), fall 2004 (18), fall 2006 (28).
- CS 4349 Advanced Data Structures and Algorithms. spring 2005 (38), fall 2005 (35).
- CS3345 Algorithm Analysis and Data Structures. fall 2003 (32).
- CS2305 Discrete Mathematics for Computing. summer 2006 (13).
- CS7301 Computational Geometry. summer 2006 (10).

At Duke University

- Spring 2002, graduate course CPS234 Computational Geometry.

At University of British Columbia

- Spring 2001, undergraduate course CPSC320 Intermediate Algorithm Design and Analysis.
- Fall 1999, graduate course CPSC516 Computational Geometry.

At Ural State University

- Graduate course **Computational Geometry**.
- Graduate course **Graph Algorithms**.
- Graduate course **Data Structures**.
- Undergraduate course **Design and Analysis of Algorithms**.
- Undergraduate course **Calculus**.

INVITED PRESENTATIONS

At Conferences

- Graph Rigidity and Its Applications. International Workshop on Discrete Mathematics and its Applications. Hitachi, Japan, 2006.

- Recent Developments and Open Problems in Voronoi Diagrams. The 3rd International Symposium on Voronoi Diagrams in Science and Engineering, ISVD 2006.

At Universities

- University of British Columbia, November 2005.
- Graz University of Technology, August 2005.
- Charles University, Prague, August 2005.
- Karlsruhe University, July 2005.
- Universitat Politècnica de Catalunya (UPC), June 2005.
- Kyoto University, May 2005.
- Japan Advanced Institute of Science and Technology, May 2005.
- Kent State University, November 2004.
- Banff International Research Station, July 2004.
- University of Montana, June 2003.
- University of British Columbia, November 2001.
- McGill University, May 2001.
- Simon Fraser University, May 2001.
- McMaster University, 2000.
- University of Saarland, 1999.
- University of British Columbia, 1999.
- Simon Fraser University, October 1998.
- Ben-Gurion University, 1998.

ACADEMIC HONORS

- Gold (1-st place) Medal at the National Mathematical Competition, 1979.
- Silver (2-nd place) Medal at the National Mathematical Competition, 1980.

PUBLICATIONS

Monographs and Book Chapters

1. Topological Indices in Combinatorial Chemistry. In I. Mandoiu and A. Zelikovsky, editors, *Bioinformatics Algorithms: Techniques and Applications*. Wiley-Interscience, 2007. to appear.
2. Lower and Upper Bounds for Tracking Mobile Servers. In N. S. R. Baccar-Yates, U. Montanari, editor, *Foundations of information technology in the era of network and mobile computing*, pp. 47-58. Kluwer Academic Publishers, 2002. Written with B. Bhattacharya, D. Kirkpatrick, and M. Segal.
3. Development of Channel Approach for Design of Microelectronic Devices. Ural State University, 1987. Monograph, 120 pages. Written with N. N. Yakovlev, M. O. Asanov, V. A. Baranskii, L. I. Krutova, A. N. Petrov, B. N. Harin, and N. K. Shangunov.

Journal Publications

4. Efficient Algorithms for the d -Dimensional Rigidity Matroid of Sparse Graphs. *Computational Geometry: Theory and Applications*, 2007. to appear.
5. Wiener Indices of Balanced Binary Trees. *Discrete Applied Mathematics*, 155(4):457-467, 2007. Written with H. Wang.
6. Phylogenetic Networks Based on the Molecular Clock Hypothesis. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 2007. to appear. Written with Y. Zhang.
7. A PTAS for cutting out polygons with lines. *Algorithmica*, 2007. to appear. Written with O. Daescu and M. Jiang.
8. On Finding Widest Empty Curved Corridors. *Computational Geometry: Theory and Applications*, 2007. to appear. Written with J. M. Díaz-Báñez, C. Seara, and I. Ventura.
9. Sliding Disks in the Plane. *International Journal of Computational Geometry and Applications*, 2007. to appear. Written with A. Dumitrescu and J. Pach.
10. RNA Multiple Structural Alignment with Longest Common Subsequences. *Journal of Combinatorial Optimization*, 13(2):179-188, 2007. Written with M. Kubica, T. Walen, and B. Zhu.
11. Moving Coins. *Special issue of "Computational Geometry: Theory and Applications"*, 34(1):35-48, 2006. Written with M. Abellaus, F. Hurtado, A. G. Olaverri, D. Rappoport, and J. Tejel.
12. The Lifting Model for Reconfiguration. *Discrete Computational Geometry*, 35(4):653-669, 2006. Written with A. Dumitrescu.
13. Competitive Algorithms for Mobile Centers. *Mobile Networks and Applications*, 11(2):177-186, 2006. Written with B. Bhattacharya, D. Kirkpatrick, and M. Segal.
14. Equitable Subdivisions of Polygonal Regions. *Special issue of "Computational Geometry: Theory and Applications"*, 34(1):20-27, 2006. Written with P. Bose and D. Kirkpatrick.
15. Geometric Facility Location Problems with Uncertainty. *Discrete Optimization*, 2(1):3-34, 2005. Written with I. Averbakh.
16. An Approximate Morphing between Polyline. *International Journal of Computational Geometry and Applications*, 15(2):193-208, 2005.
17. Enumerating Pseudo-Triangulations in the Plane. *Computational Geometry: Theory and Applications*, 30(3):207-222, 2005.

18. Equipartitions of Measures by 2-fans. *Discrete Computational Geometry*, 34(1):87–96, 2005.
19. On a Conjecture of Wiener Indices in Computational Chemistry. *Algorithmica*, 40(2):99–118, 2004. Written with A. Ban and N. Mustafa.
20. Cylindrical Hierarchy for Deforming Necklaces. *International Journal of Computational Geometry and Applications*, 14(1-2):3–18, 2004.
21. Transforming Pseudo-Triangulations. *Information Processing Letters*, 90(3):141–145, 2004.
22. Wiener Indices of Binary Trees. *WSEAS Transactions on Systems*, 3:1447–1451, 2004.
23. Dynamic Algorithms for Approximating Interdistances. *Nordic Journal of Computing*, 11(4):344–355, 2004. Written with M. Segal.
24. Directed Graphs and Minimum Distances of Error-Correcting Codes in Matrix Rings. *New Zealand Journal of Mathematics*, 33:113–119, 2004. Written with A. Kelarev and A. Salagean.
25. Selecting Distances in Arrangements of Hyperplanes Spanned by Points. *Journal of Discrete Algorithms*, 2(3):333–345, 2004. Written with M. Segal.
26. Computing a $(1+\epsilon)$ -Approximate Geometric Minimum-Diameter Spanning Tree. *Algorithmica*, 38(4):577–589, 2004. Written with M. J. Spiggis, J. M. Keil, M. Segal, and J. Snoeyink.
27. An Algorithm for Analysis of Images in Spatial Information Systems. *Journal of Automata, Languages and Combinatorics*, 8(4):557–568, 2003. Written with A. Kelarev.
28. Computing Closest Points for Segments. *International Journal of Computational Geometry and Applications*, 13(5):419–438, 2003.
29. Computing Homotopic Shortest Paths in the Plane. *Journal of Algorithms*, 49(2):284–303, 2003.
30. Algorithms for Shortest Paths and d -cycle Problems. *Journal of Discrete Algorithms*, 1(1):1–9, 2003. Written with A. Kelarev.
31. An Efficient Algorithm for Enumeration of Triangulations. *Computational Geometry: Theory and Applications*, 23(3):271–279, 2002.
32. An $O(n \log n)$ Algorithm for the Zoo-keeper's Problem. *Computational Geometry: Theory and Applications*, 24(2):63–74, 2002.
33. An Optimal Morphing between Polylines. *International Journal of Computational Geometry and Applications*, 12(3):217–228, 2002.

34. Packing Two Disks in a Polygon. *Computational Geometry: Theory and Applications*, 23(1):31–42, 2002.
 35. Fast Algorithms for Approximating Distances. *Algorithmica*, 33(2):263–269, 2002. Written with M. Segal.
 36. Efficient Algorithms for Centers and Medians in Interval and Circular-arc Graphs. *Networks*, 39(3):144–152, 2002. Written with B. Bhattacharya, M. Keil, D. Kirkpatrick, and M. Segal.
 37. An Efficient Algorithm for the Three-Dimensional Diameter Problem. *Discrete Computational Geometry*, 25(2):235–255, 2001.
 38. Rectilinear Static and Dynamic Discrete 2-center Problems. *Int. Journal of Math. Algorithms*, 2:149–162, 2001. Written with M. Segal.
 39. Covering a Set of Points by Two Axis-parallel Boxes. *Information Processing Letters*, 75:95–100, 2000. Written with M. Segal.
 40. Enumerating Longest Increasing Subsequences and Patience Sorting. *Information Processing Letters*, 76(1-2):7–11, 2000. Written with M. Segal.
 41. Queries with Segments in Voronoi Diagrams. *Computational Geometry: Theory and Applications*, 16(1):23–33, 2000. Written with J. Snoeyink.
 42. Optimal Facility Location under Various Distance Functions. *International Journal of Computational Geometry and Applications*, 10(5):523–534, 2000. Written with K. Kedem, M. Segal, and A. Tamir.
 43. Generalizing Ham Sandwich Cuts to Equitable Subdivisions. *Discrete Computational Geometry*, 24(4):605–622, 2000. Written with D. Kirkpatrick and J. Snoeyink.
 44. An Optimal Algorithm for Closest-Pair Maintenance. *Discrete Computational Geometry*, 19:175–195, 1998.
 45. On Constructing Minimum Spanning Trees in R_1^k . *Algorithmica*, 18:524–529, 1997.
 46. Efficient Algorithms for Computing the Modality of Polygons. *Discrete Mathematics*, 5(4):120–132, 1993.
 47. Coloring the Plane and van der Waerden's Theorem. *Kvant*, 6:35–38, 1983.
- Refereed Conference Proceedings**
48. Traversing a Set of Points with a Minimum Number of Turns. In *Proc. 29th Annu. ACM Sympos. Comput. Geom.*, 2007. to appear. Written with P. Bose, A. Dumitrescu, F. Hurtado, and P. Valtr.

49. Straightening Drawings of Clustered Hierarchical Graphs. In *Proc. 33rd Annu. Conf. on Current Trends in Theory and Practice of Informatics (SOFSEM'07)*, LNCS 4382, pp. 176–187, 2007. Written with M. Völker, A. Wolff, and Y. Zhang.
50. Recent Developments and Open Problems in Voronoi Diagrams. In *Proc. 3rd Internat. Sympos. on Voronoi Diagrams in Science and Engineering (ISVD'06)*, pp. 4–5, 2006.
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Other Publications

106. Geometric Facility Location Problems with Uncertainty. In *1st Annual McMaster Optimization Conference: Theory and Applications*, 2001. Written with I. Averbakh.
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108. Locating Watchtowers in Terrains. In *Proc. of the Fourth PIMS Graduate Industrial Math Modelling Camp, University of Victoria*, pp. 1-10, 2001. Written with P. Anderson, A. Driga, L. Fairbairn, J. Li, T. Marquez-Lago, and L. Zhao.
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111. An Optimal Algorithm for Constructing Minimum Spanning Tree in Complete Planar Distance Graph. Technical report, Ural State University, pp. 15-19, 1989.

Program Committee

- The 4th International Symposium on Voronoi Diagrams in Science and Engineering, ISVD 2007.
- The 17th International Symposium on Algorithms and Computation, ISAAC 2006.
- The International Conference on Computational Science and its Applications, ICCSA 2006.

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- The 3rd International Symposium on Voronoi Diagrams in Science and Engineering, ISVD 2006.
- The 1st Annual International Conference on Algorithmic Applications in Management, AAIM 2005.
- The International Conference on Imaging Science, Systems, and Technology, CISST, 2003 and 2004.
- The International Workshop on Computational Geometry and Applications, CGA, 2003 and 2004.
- International Scientific Committee of Mathematical Biology and Ecology 2004.

Served as Referee

- Journals:** Discrete & Computational Geometry, ACM Transactions on Algorithms, Neurocomputing, Computational Geometry: Theory & Applications, Theoretical Computer Science, Journal of Graph Algorithms and Applications, Graphs and Combinatorics, Journal of Discrete Algorithms, Information Processing Letters,
- Conferences:** ACM Symposium on Computational Geometry, ACM-SIAM Symposium on Discrete Algorithms, Workshop on Algorithms and Data Structures (WADS), International Conference on Computational Science, Canadian Conference on Computational Geometry, Japan Conference on Discrete and Computational Geometry, .

Other

- Panel member, National Science Foundations (USA), for Theoretical Computer Science, 2004.
- Evaluating grant proposals for NSERC (Canada), 2003, 2006.

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Research Interests Software Engineering: software process modeling and control, software testing, and software quality. Application of control theory to computer science related problems such as adaptive run-time systems and network security.

Education

Doctor of Philosophy Department of Computer Sciences Purdue University, West Lafayette, IN 47907-1398	May 2002
Master of Science Department of Computer Sciences University of São Paulo, São Carlos, Brazil	March 1993
Bachelor of Science Department of Computer Science Federal University of Mato Grosso do Sul, Campo Grande-MS, Brazil	December 1990

Work Experience

Assistant Professor Department of Computer Science University of Texas at Dallas	from August 2002
Teaching Assistant Department of Computer Sciences Purdue University	Spring 2001 Spring 1999
CS566 - Programming Language	Fall 1998
Teaching Assistant Department of Computer Sciences Purdue University	Fall 2000 Fall 2001
CS352 - Compilers	
Lecturer Department of Computer Science Federal University of Mato Grosso do Sul, Brazil	from March 1993 to August 1997

Courses Taught

Software Testing	2002-2006
Discrete Mathematics	2006
Software Process Modeling, Simulation, and Control Compilers	2003-2004
Introduction to Formal Languages and Automata	1996-1997
Algorithms and Data Structure	1993-1995
Software Engineering	1994 1993-1994

Dissertations

Doctoral	A Mathematical Foundation for Software Process Control <i>Development of a State Variable Model to capture the dominant behavior of the Software Test Process and use of control theory to regulate the process.</i> Advisors: Aditya P. Mathur and Ray A. DeCarlo
Masters	Programmed Execution of Statecharts <i>Design and implementation of a interpreted language to control the execution of statecharts in a graphical environment.</i> Advisor: Paulo C. Masiero

Awards/Honors

May 2001	Maurice Halstead Memorial Award for Outstanding Research in Software Engineering/Purdue University.
May 2001	Best TA Award in recognition for the outstanding performance as teaching assistant during the 2000-2001 academic year at the Computer Science Department at Purdue University.
July 1997-June 2001	CAPES fellowship to pursue Ph.D. in Computer Science.
October 1993	Best Paper Award, Brazilian Symposium on Software Engineering (SBES'93)
March 1992-February 1993	FAPESP fellowship to pursue a MS degree in Computer Science.
March 1991-February 1992	CNPq fellowship to pursue a MS degree in Computer Science.
1981 - 1987	Top Three Best Student Award from Junior to Senior High School. The prize was a full fellowship for each year.

Grant Proposals

Automated Defense Using Feedback Control submitted to NSF Cyber Trust Program January 9, 2007 PI: João W. Cangussu Amount Requested - US\$271,434.00
An Architectural Framework for the Design and Analysis of Autonomous Adaptive Systems submitted to NSF Computing Processes and Artifacts Program October 10, 2006 PI: Kendra Cooper Co-PIs: João W. Cangussu and Eric Wong Amount Requested - US\$200,155.00
Feedback Control Model Expansion and Implementation Clark Foundation Research Initiation Grants - US\$10,000.00
ODC Oriented Stochastic Software Process Control Project Ermit - US\$60,000.00

Professional Membership

Association of Computing Machinery (ACM)
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References

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Publications Journals

1. Dantu, R.; Cangussu, J. W.; and Patwardhan, S.
"Fast Worm Containment using Feedback Control"
IEEE Transactions on Dependable and Secure Computing (accepted for publication).
2. Miller, Scott D.; DeCarlo, Raymond A.; Mathur, Aditya P.; Cangussu, Joao W.
"A Control Theoretic Approach to the Management of the Software System Test Phase".
Journal Of System and Software(JSS), Number 79, Volume 11, pages 1486 - 1503, November 2006.
3. Cangussu, Joao W., DeCarlo, Ray A. and Mathur, Aditya P.
"Using Sensitivity Analysis to Validate a State Variable Model of the Software Test Process".
IEEE Transactions on Software Engineering, Vol. 29, No. 5, May 2003.
4. Cangussu, Joao W., DeCarlo, Ray A. and Mathur, Aditya P.
"A Formal Model for the Software Test Process".
IEEE Transactions on Software Engineering, Vol. 28, No. 8, pp. 782-796, August 2002.
5. Cangussu, Joao W.
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6. Cangussu, Joao W., Cooper, K., and Wong E.
"Empirical Evaluation of a Run-Time Dynamic Adaptable Framework".
Studia Informatica Universitatis Iasi, special issue on Software Engineering, selected papers from ACM SAC-SE-04 (Nicosia, March 2004), December 2004, Paris, France.
7. Cangussu, Joao W., Masiero, Paulo C. and Maldonado, Jose C.
"Programmed Execution of Statecharts".
Brazilian Computer Journal (RBC), Special Issue: Proceedings of VII Brazilian Symposium on Software Engineering, Rio de Janeiro-RJ/Brazil, Vol. 7, No. 2, pp. 3-14, January-June 1994 (in portuguese).
8. Cangussu, Joao W., Penteado, Rosângela, Masiero, Paulo C. and Maldonado, Jose C.
"Validation of Statecharts Based on Programmed Execution".
Journal of Computing and Information (JCI), Special Issue: Proceedings of Seventh International Conference on Computing and Information (ICC'95), Trent University, Peterborough, Ontario/Canada, July 5-8, 1995, pp. 870-885.

Conferences

1. Fagen, Wade; Cangussu, Joao; and Dantu, Ravi
"Goliath: A Configurable Approach for Network Testing"
3rd IEEE International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom), Orlando, Florida, May 21-23, 2007
2. Haider, Syed Waseem; Cangussu, Joao W.
"A Survey of Estimation Techniques for Defect Estimation"
2nd International PROMISE (PredictOr: Models In Software Engineering) Workshop September 24, 2006, Philadelphia, Pennsylvania USA.
3. Bayan, Mohamad; Cangussu, J. W.
"Automatic Stress and Load Testing for Embedded Systems"
3rd International Workshop on Software Cybernetics - 30th Annual IEEE International Computer Software and Applications Conference (COMPSAC 2006), Chicago, IL, Sept. 18-21, 2006
4. Cangussu, J. W.; Cooper, K. C.; and Wong, E. W.
"Multi Criteria Selection of Components Using the Analytic Hierarchy Process"
Ninth International SIGSOFT Symposium on Component-based Software Engineering (CBSE 2006) Malmardalen University, Vasteras near Stockholm, Sweden, June 29th -1st July 2006
5. Haider, S. W.; Cangussu, J. W.
"Bayesian ED³M"
Eighteenth International Conference on Software Engineering and Knowledge Engineering (SEKE 2006) San Francisco Bay, USA, July 5-7, 2006
6. Cangussu, J. W. and Baron, M.
"Automatic Identification of Change Points for the System-Testing Process" COMPSAC 2006 - IEEE International Computer Software and Applications Conference, Chicago, September 18-21, 2006
7. Sharpe, J. L.; Cangussu, J. W.
"A Productivity Metric Based on Statistical Pattern Recognition".
29th Annual International Computer Software and Applications Conference (COMPSAC), Edinburgh, Scotland, July 25-28, 2005.
8. Cangussu, Joao W. and Karcich, Richard M.
"A Control Approach for Agile Processes",
Second Workshop on Software Cybernetics. Collocated with the 29th Annual International Computer Software and Applications Conference (COMPSAC), Edinburgh, Scotland, July 25-28, 2005.

9. Cangussu, J. W. and Karcich, R. M.
"Using Dynamic Models for the Evaluation of Integration and System Testing",
The Seventeenth International Conference on Software Engineering and Knowledge Engineering (SEKE'05),
Taipei, Taiwan, Republic of China, July 14 to 16, 2005.
10. Danttu, Ram; Cangussu, João W.
"An Architecture for Network Security Using Feedback Control"
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International Conference on Intelligence and Security Informatics (ISI), Atlanta, Georgia, May 19-20,
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11. Danttu, Ram; Cangussu, João W.; Turi, Janos
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International Conference on Intelligence and Security Informatics (ISI), Atlanta, Georgia, May 19-20,
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12. Cooper, Kendra; Cangussu, J. W.; Sankaranarayanan, G.; Soundararajan, R.; and Wong, W.
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located with ICSE-2005, St. Louis, Missouri, May 15-21, 2005).
13. Abu, Ghaffari and Cangussu, J. W.
"A Learning Model for Software Development Processes",
The IASTED International Conference on Software Engineering, February 15-17, 2005 Innsbruck,
Austria
14. Cangussu, J. W.; Cooper, Kendra; Wong, Eric; and Ma, Xiao
"A Run-Time Adaptable Persistence Service using the SMART Framework",
38th Hawaii International Conference on System Science (HICSS), Kona, Hawaii, January 3-6, 2005.
15. Abu, Ghaffari; Cangussu, J. W.; and Turi, Janos
"A Quantitative Learning Model for Software Test Process",
38th Hawaii International Conference on System Science (HICSS), Kona, Hawaii, January 3-6, 2005.
16. Cangussu, J. W.; Karcich, R. M.; DeCarlo, R. A.; and Mathur, A. P.
"Software Release Control using Defect Based Quality Estimation",
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17. Abu, G.; Chacko, L.; and Cangussu, J. W.
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ACM Symposium on Applied Computing (SAC 2004) Nicosia, Cyprus, March 14-17, 2004.
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14th International Symposium on Software Reliability Engineering (ISSRE 2003), Denver, Colorado,
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IEEE Systems, Man, and Cybernetics 2001 (SMC'2001), Tucson, AZ, October 7-10, 2001.
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Proc. 29th International Conference on Software Engineering (ICSE'2001), Doctoral Symposium,
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"A Language for Programmed Execution of Statecharts",
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RJ/Brazil, 1992 (in portuguese).

Technical Reports

1. Haider, S. W. ; Cangussu, J. W.
"A Novel Approach for Defect Estimation"
University of Texas at Dallas, Department of Computer Science, number UTDCS-30-05, Technical
Report, Richardson-TX, August 2005.
2. Cangussu, João W.; Cooper Kendra; Wong, Eric; and Ma, Xiao
"An Adaptive Persistence Service using the SMART Framework",
University of Texas at Dallas, Department of Computer Science, number UTDCS-05-04, Technical
Report, Richardson-TX, February 2004.
3. Cangussu, João W. and Cooper Kendra
"A New Approach for the Design and Control of Adaptive Systems",
University of Texas at Dallas, Department of Computer Science, number UTDCS-21-03, Technical
Report, Richardson-TX, May 2003.
4. Cangussu, João W., DeCarlo, Ray A. and Mathur, Aditya P.
"A Formal Model of the Software Test Process",
Software Engineering Research Center (SERC), Technical Report, 2001.

Publications Under Submission

1. Haider, S. W. ; Cangussu, J. W.
"Estimating Defects based on Defect Decay Model: ED^3M "
Submitted to IEEE Transactions on Software Engineering.
2. Dantu, R. and Cangussu, J. W.
"An Architecture for Automatic and Adaptive Defense"
Submitted to IEEE Computational Intelligence Magazine
3. Cangussu, João W.; Cooper, Kendra; and Wong, Eric
"An Architectural Framework for the Design and Analysis of Autonomous Adaptive Systems"
31st Annual IEEE International Computer Software and Applications Conference (COMPSAC) Bei-
jing, July 24-27, 2007

Services

Reviewer
Journals
IEEE Transactions on Software Engineering (IEEE TSE)
International Journal of Software Engineering & Knowledge Engineering
(IJSEKE)
Knowledge and Information Systems: An International Journal (KAIS)
Journal of Heat Transfer, American Society of Mechanical Engineers
Software Testing, Verification and Reliability (STVR)
Journal of Systems and Software (JSS)

Conferences

SAFECOMP 2002 - The International Conference of Computer Safety, Reliability and Security
IASTED International Conference on Software Engineering 2003
SAFECOMP 2003 - The International Conference of Computer Safety, Reliability and Security
COMPSAC 2003 - IEEE International Computer Software and Applications Conference
COMPSAC 2004 - IEEE International Computer Software and Applications Conference
HiCSS 2005 - Hawaii International Conference on System Science

Committees

COMPSAC 2003 (Operations Committee Member)
Software Engineering and Applications-SEA 2004 (PC Committee)
Software Cybernetics Workshop (COMPSAC 2004) (PC Committee)
Software Engineering and Applications-SEA 2005 (PC Committee)
Software Cybernetics Workshop (COMPSAC 2005) (PC Committee)
International Conference on Distributed Computing and Internet Technology (ICDCIT 2005) (PC Committee)
SAC 06 - (SE) Software Engineering Track (Organizing and PC Committee)
SEKE 06 - International Conference on Software Engineering and Knowledge Engineering (PC Committee)
Software Cybernetics Workshop (COMPSAC 2006) (PC Committee)
Software Engineering and Applications-SEA 2006 (PC Committee)
Brazilian Symposium on Software Engineering-SBES 2006 (PC Committee)
IEEE Globecom 2006 - Network Security Systems Symposium (PC Committee)
International Conference on Software Engineering Advances-ICSEA 2006 (PC Committee)
Software Cybernetics Workshop (COMPSAC 2007) (PC Committee)
International Computer Software and Applications Conference - COMP-SAC 2007 (PC Committee)
Brazilian Symposium on Software Engineering-SBES 2007 (PC Committee)
Software Engineering and Applications-SEA 2007 (PC Committee)
SEKE 07 - International Conference on Software Engineering and Knowledge Engineering (PC Committee)

Session Chair

ACM Symposium on Applied Computing (SAC 2004)
Software Engineering and Applications-SEA 2003
Seventeenth International Conference on Software Engineering and Knowledge Engineering (SEKE 2005)
International Computer Software and Applications Conference - COMP-SAC 2006

Proposal Panelist

NSF (National Science Foundation) - June 2004, December 2005

Collaborators

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Aditya P. Mathur, Purdue University
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Kendra Cooper, University of Texas at Dallas
Eric Wong, University of Texas at Dallas
Janos Turi, University of Texas at Dallas
Ram Dantu, University of North Texas
Michael Baron, University of Texas at Dallas

Current Students
Ph.D.

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Former Students
Master

Wade Fagen
"The Goliath Framework: A Configurable Virtual Network Environment"
August 2006, University of Texas at Dallas
Currently: PhD Student at UIUC.

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EDUCATION

Ph.D. in Operations Research, University of California, Berkeley, 1967.
B. Tech. (Hons with Distinction) in Mechanical Engineering, Indian Institute of Technology, Bombay, India, 1963.

HONORS

Ashbel Smith Professor, UT Dallas, 1997.
Nominated for the George B. Dantzig Prize in Mathematical Programming, 1988.

Polykarp Kusch Lecturer, 1986-87.

Gurudas Chatterjee Award given by Operations Research Society of India, 1983.

Nominated for Piper Teaching Award from the University of Texas at Dallas, 1980.

Merit Scholarship (given to top ten students at IIT, Bombay), 1960-62.

EXPERIENCE

Academic:

School of Engineering and Computer Science — The University of Texas at Dallas,

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Ashbel Smith Professor of Computer Science, 1999-Present
Interim Dean, 2002-3

School of Management — The University of Texas at Dallas.

Ashbel Smith Professor, Operations Research 1997-2002
Professor, Operations Research, 1981-1997
Associate Professor, Operations Research, 1975-81.

Department of Operations Research, Case Western Reserve University, 1969-75.

Associate Professor, Operations Research, 1972-75.

Assistant Professor, Operations Research, 1969-72.

Instructor, University of California, Berkeley, 1967.

Industrial:

Consultant, Banking Systems International, Inc. - Reno, Nevada, 1972-75.

Scientist/Consulting Staff, Optimum Systems, Inc. - Palo Alto, California, 1967-69.

Consultant, MCI, 1995-1997

Consultant, BNR/Nortel, 1995-1999

Consultant, Qteq/Nortel, 1997-2000

Consultant, Yottanetworks, 2000-2002

Visiting Appointments:

Visiting Professor, Department of Statistics and Operations Research, Tel Aviv University, December 1981.

Visiting Professor, MEDS Department, School of Management, Northwestern University, 1978-79.

Lecturer, Indian Statistical Institute, Calcutta, India, October-December, 1966.

PUBLICATIONS (Includes Refereed Conference Proceedings):

"Optimal Strategies of Fire Fighting by Firebreaks" (with R. W. Shophard), *Proceedings of Fourth International Conference on Operations Research*, MIT, 1966.

"Total Unimodularity of Matrices," *SIAM Journal on Applied Mathematics*, pp. 1032-1034, November 1969.

"A Special Case of the Complementarity Problem," *OPSEARCH*, pp. 263-268, December 1970.

"Sequential Games" (with D. A. Kohler), *Operations Research*, pp. 270-277, May 1971.

"Optimal Location of Service Centers of Certain Types" (with K.P.K. Nair), *Naval Research Logistics Quarterly*, pp. 503-510, December 1971.

"An Algorithm for Discounted Stochastic Games" (with K.P.K. Nair and S. Subba Rao), *Journal of Optimization Theory and Applications*, pp. 627-637, July 1973.

"Service Partitioning to Minimize Mean Flow Time" (with H. Emmons and S. Subba Rao), *Proceedings of the XXth International Meeting of TIMS (refereed)*, pp. 480-484, 1973.

"Order Preserving Allocations of Jobs to Two Machines" (with S. Melta and H. Emmons), *Naval Research Logistics Quarterly*, pp. 361-364, 1974.

"Row Generalized Linear Program," *OPSEARCH*, pp. 28-34, March 1974.

"Markov Ratio Decision Processes" (with V. Aggarwal and K.P.K. Nair), *Journal of Optimization Theory and Applications*, Vol. 21, No. 1, pp. 27-37, 1977.

"A Special Case of the Transportation Problem" (with S. Subba Rao), *Operations Research*, Vol. 25, pp. 525-528, 1977.

"Minimal Ratio Spanning Trees," *Networks*, Vol. 7, pp. 335-342, 1977.

"Optimal Policies for Burn-In Procedures," *OPSEARCH*, Vol. 14, pp. 149-160, 1977.

"Local Unimodularity of Matrix Vector Pairs" (with K. Truemper), *Linear Algebra and Its Applications*, Vol. 22, pp. 65-78, 1978.

"Critical Path Problem under Assignment Constraint - An Application of Extreme Point Mathematical Programming Problem" (with S. Kumar and D. Wagner), *Journal of Information and Optimization Sciences*, Vol. 1, pp. 41-51, 1980.

"Discounted Stochastic Ratio Games" (with V. Aggarwal and K.P.K. Nair), *SIAM Journal on Applied Mathematics: Algebraic and Discrete Methods*, Vol. 1, pp. 201-210, 1980.

"Nonterminating Stochastic Ratio Games" (with V. Aggarwal and K.P.K. Nair), *Revue Automatique Informatique Recherche Operationelle*, Vol. 14, pp. 21-30, 1980.

" $O((n \log p)^2)$ Algorithms for the Continuous p -Centre Problem on a Tree" (with A. Tamir), *SIAM Journal on Applied Mathematics: Algebraic and Discrete Methods*, Vol. 1, pp. 370-375, 1980.

"Weighted Min-Max and Max-Min Location Problems: Finite and Polynomially Bounded Algorithms" (with M.J. A.P. Faccs), *OPSEARCH*, Vol. 17, pp. 172-180, 1980.

- "Problems of Location on Trees" (with A. Daugherty), *Mathematics of Operations Research*, Vol. 6, pp. 40-57, 1981.
- "An $O(n \log^2 n)$ Algorithm for the Longest Path in a Tree with Applications to Location Problems" (with N. Megiddo, A. Tamir, and E. Zenel), *SIAM Journal on Computing*, Vol. 10, pp. 328-337, 1981.
- "Polynomial Algorithms for Totally Dual Integral Systems and Extensions," *Annals of Discrete Math.*, Vol. 11, pp. 33-52, (1981).
- "Minimum Cost to Reliability Ratio Trees" (with Y. Aneja and K.P.K. Nair), *Annals of Discrete Math.*, Vol. 11, pp. 53-60, 1981.
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- "Total Weak Unimodularity: Testing and Applications" (with S. Shitrali), *Discrete Mathematics*, Vol. 51, pp. 137-145, 1984.
- "Production Planning in Assembly Line System" (with Y. Aneja and K.P.K. Nair), *Management Science*, Vol. 30, pp. 713-719, 1984.
- "Polynomial Testing of the Query 'Is $a^b \geq c^d$ ' with Application to Finding a Minimal Cost Reliability Ratio Spanning Tree" (with A. Tamir), *Discrete Applied Mathematics*, Vol. 9, pp. 117-123, 1984.
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- "Optimization Problems with Algebraic Solutions: Quadratic Fractional Programs and Ratio Games" (with A. Tamir), *Math. Programming*, Vol. 30, pp. 326-339, 1984.

- "Linear Complementarity Problems Solvable by a Polynomially Bounded Pivoting Algorithm" (with J. S. Pang), *Math. Programming Studies*, 25, pp. 13-27, 1985.
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- "Solvable Classes of Generalized Traveling Salesman Problem," (referred) *Proceedings of DIMACS*, pp. 49-60, 1990.

- "Tree Traveling Salesman Problem" (with S.N. Kabadi) (refereed) *Proceedings of the Second Canadian Conference on Computational Geometry*, 1990.
- "A Problem in Computer Vision that is Polynomially Solvable" (with S. Kabadi and S.L. Narasimhan), *OPSEARCH*, 28, 1991, pp 125-130.
- "Integer Solution of Synthesis of Communication Network" (with S. Sridhar). (Refereed) *Proceedings of the First Conference on Integer Programming and Combinatorial Optimization*, also in *Mathematics of Operations Research*, August 1992, pp 581-585.
- "A Rounding Algorithm for Integer Programs" (with S. Lakshminarayana), *Discrete Applied Mathematics*, 50, (1994) #3, pp 267-282.
- "Competitive Location and Entry Deterrence in Hotelling's Duopoly Model" (with J. Bhadury and V. Padmanabhan), *Location Science*, Vol. 2, #4 (1994), pp. 259-275.
- "Stock Cutting of Complicated Designs by Computing Minimal Nested Polygons", (with J. Bhadury), *Engineering Optimization*, 25 (1995), pp. 165-178.
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- "Finding the Set of all Minimal Nested Convex Nested Polygons", (with J. Bhadury), (Refereed) *Proceedings of the Eighth Canadian Conference on Computational Geometry*, pp. 26-31, Carleton University, Ottawa, August, 1996.
- "Art Gallery Problems for Convex Nested Polygons", (with J. Bhadury, V. Chandru, and A. Maheshwari), *INFORMS Journal of Computing*, 9, (1997), #1, pp 100-110.

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- "Computational Complexity of Integrated Models of Network Design and Facility Location" (with J. Bhadury and L. Gewali), *Southwest Jour. of Pure and Applied Mathematics*, July 2000, pp. 30-43.
- "Maximizing Residual Flow under Arc Destruction" (with Y.P. Aneja and K.P.K. Nair), *NETWORKS*, 38, #4, (2001), pp. 194-198.
- "Filtering Objectionable Internet Content." (joint with V. Jacob, R. Krishnan, Y.U. Ryu, and S. Hong) in *Proceedings (Refereed) of the 30th International Conference on Information Systems*, pp. 274-278, 1999.
- "Disease Prognosis with an Isotonic Prediction Technique," (joint with Y.U. Ryu, and V. Jacob) in *Proceedings (Refereed) of the 9th Workshop on Information Technologies and Systems*, pp. 26-31, 1999; accepted for publication in *Management Science*.
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- "Improved Bounds for the On-line Scheduling Problem", (with John Rudin), *SIAM Journal on Computing*, 32, (2003), pp. 717-735.

- "Highly Efficient Spare Capacity Planning for Generalized Link Restoration", (with S. Krishnamurthy, M. Dawande and S. Venkatesan), *Proceedings of 18th International Conference on Computer Communications and Networks*, 2003, *IEEE*, pp. 47-52.
- "A Comparative Study of Restoration Schemes and Spare Capacity Assignments in Mesh Networks", (with M. Patel and S. Venkatesan), *Proceedings of 18th International Conference on Computer Communications and Networks*, 2003, *IEEE*, pp. 399-404 (Nominated for the best paper award).
- "Minimum Cost System Reliability with Discrete Choice Sets for Components" (with K.P.K. Nair and Y.P. Aneja), *IEEE Transactions on Reliability* **53**, (2004), pp. 71-76.
- "Scheduling Multiple Parts in a Robotic Cell Served by a Dual Gripper Robot", (with C. Srikandaram, I. Drobouchevitch, and S.P. Sethi), *Operations Research*, **52**, (2004), pp. 65-82.
- "Prognosis Using an Isotonic Prediction Technique", (with Young Ryn, and Varghese Jacob), *Management Science*, **50**, #6, (June 2004), pp. 777-785.
- "Multi-path Multi-terminal Flow Synthesis" (with K.P.K. Nair, Y.P. Aneja, and S.N. Kabadi), *Discrete Applied Mathematics* **143** (2004), pp. 182-199.
- "Efficient Minimum-Cost Bandwidth-Constrained Routing in Wireless Sensor Networks", (with M. Patel, and S. Venkatesan), *Proceedings of International Conference on Wireless Networks*, June 2004.
- "Isotonic Separation", (with Young Ryn, Varghese Jacob, and Sung Chul Hong) *INFORMS Journal on Computing*, **17**, (2005), pp. 462-474.
- "Multi-Route flows: Cut-trees and realizability" (with S.N. Kabadi and K.P.K. Nair), *Discrete Optimization*, **2**(2005), #3, pp. 229-240.
- "The multiroute maximum flow problem revisited" (with D.L. Du), *Networks*, **47** (2006), pp. 81-92.
- "Cutting out polygons", (with O. Daescu, and J. Luo), *Proceedings of 17th Canadian Conference on Computational Geometry*, pp. 180-183, August 2005.
- "Time-efficient Layer-2 Auto-configuration for Cognitive Radios", (with S. Kuppa, S. Krishnamurthy, M. Thoppian, S. Venkatesan, R. Prabesh and N. Mittal), *Proceedings of IASTED Conference on Parallel and Distributed Computing and Systems (PDOS 2005)*, Phoenix, AZ, November 2005, to appear.
- "Energy Efficient Sensor, Relay and Base Station Placements for Coverage, Connectivity and Routing", (with M. Patel, and S. Venkatesan), *Proceedings of 24th IEEE International Performance, Computing and Communications Conference*, Phoenix, AZ, April 2005.
- "Integer Version of the Multi-path Flow Network Synthesis Problem" (with S.N. Kabadi, K.P.K. Nair, and Y.P. Aneja) submitted to *Discrete Applied Mathematics*.
- "Flows over Edge-Disjoint Mixed Multi-paths and Applications" (with Y.P. Aneja, K.P.K. Nair, and S.N. Kabadi) submitted to *Discrete Applied Mathematics*.
- "Efficient Minimum-Cost Bandwidth-Constrained Routing in Wireless Sensor Networks", (with M. Patel, and S. Venkatesan), Special Issue on "Wireless Networks and Pervasive Computing," *Journal of Pervasive Computing and Communications (JPCC)*, to appear.
- "The Maximum Residual Flow Problem: NP-hardness with Two-arc Destruction", D.Du and R. Chandrasekaran, *Networks*, to appear.
- "Improved Quasi-path Restoration in Mesh Networks", M. Patel, R. Chandrasekaran, and S. Venkatesan, *IEEE/ACM Transactions on Networking*, to appear.
- "MAC-layer Scheduling in Cognitive Radio based Multi-hop Wireless Networks", Mansi Thoppian, S. Venkatesan, R. Prakash, R. Chandrasekaran, *IEEE Symposium on a World of Wireless, Mobile, and Multimedia Networks*, 2006.
- US Patents Awarded:*
- US Patent # 7,106,697: "Method for dynamically computing a switching schedule", R.E. Best, R. Chandrasekaran, J.R. Rudin III, R.Q. Hu, J.L. Watson, L. Tamil, A. Pabri, September 12, 2006.
- Current Work:*
- "The maximum residual flow problem: NP-hardness with two arc destruction" (with D.L. Du)
- "Two commodity multiroute maximum flow problems" (with D.L. Du)
- "2-Commodity Integer Network Synthesis Problem" (with S.N. Kabadi and K.P.K. Nair), submitted to *Algorithms*.
- "Design of Fault Tolerant Networks" (with R. E. Best).
- "On-line Algorithms for Parallel Machine Scheduling" (with John Rudin III)

- "Special Multi-commodity Flow Problems" (with Rajesh Jagannathan)
- "Half integrality in L^p " (joint with G. Appa and S.N. Kabadi)
- "Strongly Polynomial Algorithms in Geocent" (with S.N. Kabadi)
- "Towards a Farkas type result in integer programming"
- "Graph Labeling: Part I: Trees", (with M. Baysan, and M. Dawande)
- "Graph labeling: Part II: General Graphs", (with M. Baysan and M. Dawande)

Unpublished Work:

- "SONET Network Design" (with J. Huang and Sri Nathan)
- "Optimal Ordering Policies for a Capacity Constrained Two-item Inventory System" (with A. Mukhopadhyay and Ping Yang)
- "Optimal Ordering Policies for a Capacity Constrained Multi-item Inventory System" (with A. Mukhopadhyay and Ping Yang)
- "Capacity Constrained Multi-item Inventory System with Finite Production Rate" (with A. Mukhopadhyay and Ping Yang)
- "A Polynomial Algorithm for ϵ -optimal Strategies in a Stochastic Game"
- "Decision Rule for Uncertainty Resolution and Optimal Ordering with Sources of Imperfect Information" (with K. C. Seal), being revised
- "Optimal On-line Algorithms for Uniform Processor System with $m \geq 3$ " (with P.R. Narayanan)
- "Information Acquisition: Models and Algorithms" (with K. C. Seal)
- "Synthesis of Directed Communication Networks" (with S. Sridhar)
- "Finding Convex Hulls in $2 - D$ "
- "Synthesis Problems with Degree Based Cost Functions" (with S. Sridhar)
- "Multilevel Assignment Problem" (with S. Geetha and K.P.K. Nair)
- "Recognition of Polygons in Two Dimension" (with S.L.Narasimhan)
- "Scaling of P -matrices to P,D -Matrices"
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- "Associative Storage and Retrieval of Information" (with P. Muktejee)

- "A Genuinely Polynomial Algorithm for the Max-Flow Problem on Regular Matroids" (with S. Kabadi), 1985.
- "On a Class of Quota Restricted Admission Policies" (with R. Oliver), presented as an invited paper at ORSA/TIMS Meeting in San Francisco, November 1969.
- "A Special Linear Program" Technical Memo 208, Department of Operations Research, Case Western Reserve University.
- "On Howard Algorithm for Markov Decision Processes," Technical Memo 300, Case Western Reserve University.
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- "A Class of Generalized Traveling Salesman Problems" (with S.N. Kabadi).

PRESENTATIONS:

- "Forest Fire Fighting by Fire Breaks," Fourth International Federation of Operations Research Society, MIT, 1966.
- "On Quota Restricted Admission Policies," ORSA National Meeting, San Francisco, 1968.
- "Critical Path Assignment Problem," Western Regional ORSA Meeting, Monterey, 1968.
- "A Special Case of the Complementarity Problem," The Seventh International Symposium on Mathematical Programming, The Hague, 1970.
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- "Large Scale LP Formulation of the Traveling Salesman Problem," ORSA National Meeting, Dallas, 1971.
- "An Algorithm for Stochastic Games with Discounted Payoffs," ORSA National Meeting, Dallas, 1971.
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- "A Non-linear Complementarity Problem" (with A. Tamir), The Eighth International Symposium on Mathematical Programming, Stanford, 1973.
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- "Service Partitioning to Minimize Mean Flow Time" (with H. Emmons and S. Subba Rao), XX^a International Meeting of TIMS, Tel Aviv, 1974.
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- "Stochastic Ratio Games" (with V. Aggarwal and K.P.K. Nair), ORSA/TIMS National Meeting, Las Vegas, 1975.
- "Local Unimodularity of Matrix-Vector Pairs" (with K. Truemper), Symposium Ueber Operations Research, Heidelberg, 1976 (similar to the one given in Atlanta — see below).
- "Minimal Ratio Spanning Trees," ORSA/TIMS National Meeting, 1976.
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- "Weighted Min-Max and Max-Min Location Problems: A Finite Algorithm," International Symposium on Extremal Methods and Systems Analysis, Austin, 1977.
- "Nonterminating Stochastic Ratio Games" (with V. Aggarwal and K.P.K. Nair), ORSA/TIMS National Meeting, San Francisco, 1977.
- "Location Problems on Trees" (with A. Daugherty), ORSA/TIMS National Meeting, New Orleans, April 30 — May 2, 1979.
- "Polynomial Algorithms for Locating p -Centres on a Tree" (with A. Tamir), Tenth International Symposium on Mathematical Programming, Montreal, August 1979.
- "An $O(n \log^2 n)$ Algorithm for the Longest Path in a Tree with Applications to Location Problems" (with N. Megiddo, A. Tamir, and E. Zemel), ORSA/TIMS National Meeting, Washington, May 4-7, 1980.
- "Minimum Cost/Reliability Spanning Tree" (with K.P.K. Nair and Y. Aneja), CORs/ORSA/TIMS National Meeting, Toronto, May 3-6, 1981.

- "A Characterization of Total Dual Integrality" (with S. Sherali), ORSA/TIMS National Meeting, Houston, October 11-14, 1981.
- "Production Planning in Assembly Line Systems" (with Y. Aneja and K.P.K. Nair), ORSA/TIMS National Meeting, Houston, October 11-14, 1981.
- "Integer Programming Problems for which a Simple Rounding Type Algorithm Works," Silver Jubilee Conference on Combinatorics, Waterloo, Ontario, 1982.
- "Recognizing Gilmore-Gomory Traveling Salesman Problems," ORSA/TIMS National Meeting, Orlando, November 7-9, 1983.
- "Classes of Linear Programs with Integral Solution" (with Y. Aneja and K.P.K. Nair), ORSA/TIMS National Meeting, San Francisco, May 14-16, 1984.
- "Properties and Algorithms for Special Total Dual Integral Systems," ORSA/TIMS National Meeting, Dallas, November 26-28, 1984.
- "On Totally Dual Integral Systems" (with S.N. Kabadi), XXI^a International Symposium on Mathematical Programming, M.I.T., August 1985.
- "Combinatorial Problems Arising in Automated Manufacturing," ORSA/TIMS National Meeting, Atlanta, November 4-6, 1985.
- "Pseudomatroids" (with S.N. Kabadi), ORSA/TIMS National Meeting, Miami Beach, October 27-29, 1986.
- "Packing Trapezoids and the Gilmore-Gomory Traveling Salesman Problem" (with S.N. Kabadi), SIAM Meeting on Applied Geometry, 1987.
- "Recognition of Convex Polyhedral Objects" (with S.L. Narasimhan), ORSA/TIMS National meeting at St. Louis, October 25-28, 1987.
- "Recognition of Nonconvex Polyhedra in 3D" (with S.L. Narasimhan), ORSA/TIMS National Meeting at Washington D.C., April 25-27, 1988.
- "Simultaneously Processing Jobs on Identical Machines" (with R. Lutz and Z. Hao), ORSA/TIMS National Meeting at Washington D.C., April 25-27, 1988.
- "Ellipsoidal Methods for LCP and Stochastic Games", 13th International Symposium on Mathematical Programming (invited), 1988.
- "Gilmore Gomory Traveling Salesman Problem" (with S.N. Kabadi), 13th International Symposium on Mathematical Programming, 1988.

- "Computer Vision: Coping with Errors" (with S.L. Narasimhan, S. Sridhar), ORSA/TIMS National Meeting at Denver, October 23-26, 1988.
- "Associative Storage of Information" (with P. Mukherjee), ORSA/TIMS National Meeting at Denver, October 23-26, 1988.
- "Structure of Hilbert Basis" (with L. Sambhavi), ORSA/TIMS National Meeting at Denver, October 23-26, 1988.
- "Integer Programming and Hilbert Bases" (with S. Lakshminarayanan), The National Meeting of ORSA/TIMS, Vancouver, May 8-10, 1989.
- "Work Related to Flexible Manufacturing Systems: A Survey" (with S. Sridhar), The National meeting of ORSA/TIMS, Vancouver, May 8-10, 1989.
- (Invited) "On the Perturbation Method for Avoiding Degeneracy" (with N. Megiddo), The National Meeting of ORSA/TIMS, Vancouver, May 8-10, 1989.
- (Invited Paper) "Rounding Algorithms and Hilbert Bases" (with S. Lakshminarayanan), The Capital City Conference on Combinatorics and Theoretical Computer Science, May 22-26 1989.
- (Invited Paper) "The Gilmore Gomory Traveling Salesman Problem and Extensions" (with S.N. Kabadi), DIMACS Workshop on Polyhedral Combinatorics, held at Morristown, NJ, June 12-16 1989.
- (Invited Paper) "Least Elements and Integer Rounding Algorithms," The 1989 Mathematical Sciences Lecture Series on Lattice Programming, August 7-11, 1989.
- (Invited Paper) "Integer Programs and a Generalized Rounding Algorithm" (with S. Lakshminarayanan), The National Meeting of ORSA/TIMS held at New York, October 16-18, 1989.
- (Invited Paper) "Network Synthesis Problem" (with S. Sridhar), The National Meeting of ORSA/TIMS held at New York, October 16-18, 1989.
- (Invited Paper) "The Gilmore Gomory Traveling Salesman Problem" (with S.N. Kabadi) in the session honoring R.E. Gomory, October 16-18, 1989.
- "A Problem in Computational Geometry" (with J. Bhadury), The National Meeting of ORSA/TIMS held at Las Vegas, Nevada, May 7-9, 1990.

- "Generalized Rounding and Hilbert Basis" (with S. Lakshminarayanan), The National Meeting of ORSA/TIMS held at Las Vegas, Nevada, May 7-9, 1990.
- "The Directed Multiterminal Synthesis Problem" (with S. Sridhar), The National Meeting of ORSA/TIMS held at Las Vegas, Nevada, May 7-9, 1990.
- "Information Acquisition Process: Models and Algorithms" (with K.C. Seal), The National meeting of ORSA/TIMS held at Las Vegas, Nevada, May 7-9, 1990.
- "A Problem in Polygon Cutting" (with J. Bhadury) The National Meeting of ORSA/TIMS held at Philadelphia, October 29-31, 1990.
- "A Problem in Geometry with Application to Facility Location" (with J. Bhadury and V. Padmanabhan) The National Meeting of ORSA/TIMS held at Nashville, May 12-15, 1991.
- "Algorithms that Use Complex Algebraic Operations" The National Meeting of ORSA/TIMS held at Nashville, May 12-15, 1991.
- "Optimal On-line Algorithms" (with P.R. Narayanan) The National Meeting of ORSA/TIMS held at Nashville, May 12-15, 1991.
- "Ordering Policies for Two Commodity Capacity Constrained System" (with A. Mukhopadhyay), The National Meeting of ORSA/TIMS held at Nashville, May 12-15, 1991.
- "Two Commodity Network Synthesis Problem" (with S.N. Kabadi and K.P.K. Nair) XIVth International Symposium on Mathematical Programming, Amsterdam, August 1991.
- "A Problem in Geometry with Application to Facility Location" (with J. Bhadury and V. Padmanabhan) XIVth International Symposium on Mathematical Programming, Amsterdam, August 1991.
- "Decision Making Under Imperfect Information: A Model" (with K.C. Seal), ORSA/TIMS National Meeting held at Anaheim, November 1991.
- "Ordering Policies for a Multicommodity Capacity Constrained Production/Inventory System" (with A. Mukhopadhyay), ORSA/TIMS National Meeting held at Anaheim, November 1991.
- "Optimal On-line Algorithms for Scheduling" (with P.R. Narayanan), ORSA/TIMS National Meeting held at Anaheim, November 1991.
- "On-line Algorithms for Optimal Scheduling" (with P.R. Narayanan), ORSA/TIMS National Meeting, Orlando, April 1992.

- "Computation of Optimal Inventory Policies" (with A. Mukhopadhyay and Ping Yang), ORSA/TIMS National Meeting, Orlando, April 1992.
- "Art Gallery and Related Problems" (with J. Bhadury), ORSA/TIMS National Meeting, Orlando, April 1992.
- "A Hierarchy of Properties for Zero-One Matrices," (with S. Lakshminarayanan), ORSA/TIMS National Meeting, Orlando, April 1992.
- "A Capacity Constrained Multi-Commodity Inventory Problems" (with A. Mukhopadhyay and Ping Yang), ORSA/TIMS National Meeting, San Francisco, November 1992.
- "An Extension of a Theorem of Fulkerson and Gross" (with S.N. Kabadi and S. Lakshminarayanan), ORSA/TIMS National Meeting, San Francisco, November 1992.
- "Tessellation and g -Tessellation of Circulants, Q_6 and Q_8 (with S. Lakshminarayanan), ORSA/TIMS National Meeting, Chicago, May 1993.
- "Finding the set of all Minimal Nested Convex Polygons" (with J. Bhadury), ORSA/TIMS National Meeting, Phoenix, Oct-Nov 1993.
- "Design of Fault Tolerant Networks", (with R.E. Best), International Symposium on Mathematical Programming, Ann Arbor, August 1994.
- "Design of Directed Networks - A preliminary Analysis", (with Sri Nathan), International Symposium on Mathematical Programming, Ann Arbor, August 1994.
- "Hilbert Bases of Circulants, Q_6 , Q_8 , Node Edge Incidence Matrices, and their Transposes" (with Sambhavi Lakshminarayanan), International Symposium on Mathematical Programming, Ann Arbor, August 1994.
- "Multicommodity Flows: A Survey of Recent Results", Annual Conference of The Operational Society of India, Calcutta, India, Dec 20-22, 1994.
- "Pairwise Exchange Rearrangement Problem", (with Z. Wang), INFORMS (Formerly ORSA and TMS) National Meeting, Los Angeles, April, 1996.
- "Integer Solution for Linear Complementarity Problem" (with S.N. Kabadi and R. Sridhar), International Symposium on Mathematical Programming, Lausanne, August 1997.
- "Special Case of the Multi-commodity Problem" (with Rajesh Jagannathan), INFORMS National Meeting at Dallas, October 1997.

- "Complexity of Integrated Location & Network Design Problems", (with J. Bhadury and L.P. Gwail), INFORMS National Meeting at Dallas, October 1997.
- "SONET Ring Design Methodology", (with Jennifer Huang, and Sri Nathan) INFORMS Telecommunications Meeting, Boca Raton, March 1998.
- "Preserving Chain Flows Under Arcs Destruction in Single Commodity Networks", (with Yash P. Aneja, and K. P. K. Nair), INFORMS National Meeting at Montreal, April, 1998.
- "Integer Solutions to Linear Systems", Invited paper at Semi-Annual Meeting of Canadian Mathematical Society, St. John, NB, CANADA, June 1998.
- "Strongly Polynomial Algorithms in General" (with S.N. Kabadi), presented at the 50th Year Celebration Meeting of ISI, Madras, India, August 1998.
- "Isotonic Separation" (joint with Y. Ryu, V. Jacob, and S.C Hong) Canadian Operations Research Society Meeting at Windsor, June 1999.
- State of the Art (invited) Lecture on Integer Programming at The International Conference on Operations Research and Game Theory, IIT Madras, January 2000.
- "Fault Tolerant Network Flows and Design", (joint work with Y.P. Aneja, K.P.K. Nair and Robert E. Best), (invited), The International Conference on Operations Research and Game Theory, IIT Madras, January 2000.
- "Hop-Constrained Network Synthesis Problem", (with S.N. Kabadi, J. Kang, K.P.K. Nair), Canadian Operational Research Society Conference, Halifax, 2005.
- "Existence of Cut-trees and the Realizability Problem for Multiroute Flows", (with S. N. Kabadi, K.P.K. Nair), International Network Optimization Conference, Lisbon, Portugal, 2005.
- "Multi-terminal Multi-path Flows: Synthesis", (with Y.P. Aneja, K.P.K. Nair, S.N. Kabadi), Canadian Operational Research Society Conference, Banff, Alberta, 2004.
- "Flows over Edge-Disjoint Mixed Multipaths and Applications. (with Y. Aneja, K.P.K. Nair, S.N. Kabadi), Association of Asian Pacific Operational Research Societies Conference, New Delhi, India, 2008.
- "Hop-Constrained Network Flow Problem - Analysis and Synthesis", (with S.N. Kabadi, K.P.K. Nair, J. Kang), Canadian Operational Research Society Conference, Vancouver, British Columbia, 2003.

"Multipath Flows and Synthesis" at National Symposium on Recent Advances in Optimization: Theory and Applications, New Delhi, India, October 2006

"Recent Advances in Combinatorial Optimization: Flow Problems and Network Synthesis" Indo-US workshop on Computational Optimization and Systems Analysis, IIT Kanpur, February 2007

"A Polynomial Time Solution to Minimum Forwarding Set Problem in Wireless Adhoc Networks", M. Baysan, K. Sarac, R. Chandrasekaran, S. Berag, submitted to IEEE Transactions on Parallel and Distributed Systems.

"Graph Labeling: Part I: Trees" at IIT Kanpur Computer Science Department October 2006.

"Graph Labeling: Part II: General Graphs" at IIT Kanpur Mathematics Department, February 2007.

INVITED SERIES OF TALKS:

Indian Institute of Science, Bangalore

Indian Institute of Technology, Kanpur

Indian Institute of Technology, Bombay

Indian Institute of Technology, Madras

Indian Statistical Institute

Indian Institute of Management, Ahmedabad

Indian Institute of Management, Bangalore

University of Delhi

University of Poona, India

Operations Research Society of India

Stanford University, 1990.

University of California, Berkeley

University of Michigan, Ann Arbor

University of Waterloo

Georgia Institute of Technology, AT&T Seminar

London School of Economics

Northwestern University

Purdue University

Tel Aviv University

New York University

Case Western Reserve University

SUNY, Buffalo

University of New Brunswick

University of Oklahoma

University of Iowa

University of Illinois, Chicago

University of Windsor

Ph.D. THESES:

Chair of the committee:

M. Brown: "A Systems Approach to Performance Evaluation Baseball", June, 1971.

A. K. Rao: "On the Linear Complementarity Problem", January, 1972.

B. Z. Hull: "Results on Matroids, Blocking Systems and Convex Sets", August, 1972.

K. Yuemper: "Optimal Flows in Networks with Positive Gains", June, 1973.

A. Tamir: "The Complementarity Problem of Mathematical Programming", June, 1973.

¹V. Aggarwal: "Bimatrix Markovian Decision Processes and Stochastic Ratio Games", August, 1973.

²H. Patel: "Optimal Control of Arrival Processes in Queues with Exponential Servers", August, 1974.

J. Saha: "On Some Problems in Railway Networks", June 1975.

S. Mehta: "Optimal Design of Networks with Node Weighted Functions", July, 1975.

- A. Mittal: "Optimal Rearrangement of Objects", June, 1975.
- W. Delfino: "Optimal Design of Water Distribution", June, 1975.
- L. Costa: "Optimization Models for Offshore Oil Field Development", August, 1975.
- M. Poca: "Some Problems in Location Theory", August, 1975.
- ²P. Durkhanavala: "Economic Lot Size Determination in Multi-Item, Multi-Level Production-Inventory Systems with Acyclic Network Structures", July, 1975.
- ²K.S. Lee: "Antipollution Activities in Input-Output Analysis: An Application to Water Quality Management", June, 1975.
- R. Rao: "Optimal Labeling on Trees", June, 1976.
- ²K. Gudapati: "A Multi-Item (and Multi-Stage) Multi-Period Production Scheduling Model with Constraints", January, 1977.
- J. Barrer: "A Class of Solvable Permutation Problems", August, 1978.
- ¹P. Pantaukar: "Optimizing Operating Machines in Scheduling", December, 1978.
- S. Shirali: "Characterization of Total Dual Integrality", June, 1981.
- C.T. Shueh: "Efficient Algorithm to Rank Order a Set", December, 1981.
- L. McCalla: "Gridable Graphs: Properties, Algorithms, and Complexity", June, 1982.
- S. Kabadi: "Characterization and Development of Solution Methods for Special Classes of Totally Dual Integral Systems", December, 1984.
- S.L. Narasimhan: "Recognition of Polyhedral Objects: Concepts and Algorithms", August, 1988.
- ²Z. Hao: "Some Simultaneous and Preemptive Scheduling Problems", August, 1988.
- Sambhavi Lakshminarayana: "A Rounding Algorithm for Integer Programming and Properties of Hilbert Bases", August, 1989.
- P. Mukherjee: "Associative Storage and Retrieval of Information", August, 1989.
- S. Sridhar: "Continuous and Integer Solutions for the Network Design Problems", August, 1990.
- K. Seali: "Information Acquisition: Models and Algorithms", August, 1990.

- J. Bhadury: "Geometric Optimization Problems", August, 1991.
- P.R. Narayanan: "Performance Analysis of On Line Algorithms Under Various Scheduling Criteria", August, 1992.
- ²A. Mukhopadhyay: "Capacity Constrained Multitem Inventory/Production Systems", August, 1992.
- R.E. Best: "A Fault Tolerant Network Design Algorithm Minimizing Total Edge Capacities", August, 1992.
- Shu-Jen Huang: "On Multicommodity Flows", May, 1995.
- Zishun Wang: "Optimal Rearrangement of Objects", August, 95.
- Rajesh Jagannathan, "Special Multicommodity Flow Problems", May 1998
- John Rudin III, "Improved Bounds for the On-line Scheduling Problem", May 2001
- Donglei Du: "Multiroute Flow Problem", June, 2003
- ²Srinivasan Krishnamurthy: "Layer-2 Configuration Algorithms for Cognitive Radio Networks", December 2006
- ²Maulin Patel: "Efficient Placement and Routing Algorithms for Maximizing the Lifetime of Wireless Sensor Networks", December 2006
- ²Mehmet Baysan: "Minimum Forwarding set in Wireless Broadcast Networks"
- Member of the Committee.*
- J. Hartman: "A Primal Method of Linear Programs with Coupling Rows and Columns", September, 1970.
- B. Lev: "Non-Iterative Algorithm for Solving Special Types of Transportation Problems", September, 1970.
- R. Fricke: "Non-Convex Optimization", October, 1970.
- C. Das: "Storage and Transfer Rules for Multilocation Inventory Control", September, 1971.
- A. Daugherty: "Some Mathematical Models of Housing Process", August, 1972.
- S. Srinivasan: "Markov Decision Model of Portfolio Management", September, 1972.
- W. Brown: "Plant Location Problem", January, 1973.

- D. Rowland: "Stochastic Processes", June, 1973.
- F. Vincentini: "Limiting Distributions of Inventory Processes Induced by Simple Policies", June, 1973.
- J. Donahue: "Markov Decision Process in Stochastic Control"
- K. Tsuji: "Markov Decision Process in Stochastic Control"
- J. Svestka: "Applications of Operations Research to a Check Processing System", August, 1974.
- C.Y. Lin: "Corporate Tax Structures and a Special Class of Set Partitioning Problems", June, 1975.
- K. Dadachani: "Scheduling Intermittently Arriving Jobs to Minimize Weighted Number Tardy", July, 1975.
- T. Nunnikhoen: "Scheduling Independent Jobs on Parallel Machines to Minimize Two Objectives Related to Job Tardiness", August, 1975.
- A. Jain: "The Solution of Nonlinear Programs Using the Generalized Reduced Gradient Method", March, 1976.
- Y. Soun: "Transformable Multi-Commodity Networks", August, 1978.
- E.H. Hamilton: "MRP, Scheduling and Inventory Control", May, 1978.
- F.-T. Tseng: "On the Matroids with the Max-Flow Min-Cut Property: A Decomposition/Composition Characterization", December, 1983.
- P.S. Ku: "Stochastic Scheduling", April, 1984.
- Y.Y. Lin: "Iterative Methods for Large Convex Quadratic Programs", December, 1985.
- J.M. Yang: "Parallel Algorithms for LCP", August, 1987.
- J. Du: "Complexity of Some Deterministic Scheduling Problems", May, 1988.
- J.W. Li: "Sample-Average Analysis of Some Generalizations of the M/G/1 Queue", November, 1989.
- V. Padmanabhan: "Issues in Pricing Theory", December, 1990.
- Ching-Chin Chern: "Lot-Sizing Problems in an Imperfect Production System", May, 1995.
- Chen-Ping Pei: "Sample Average Analysis of M/G/1-type Retrieval Queueing Systems With Finite Capacity", May 1996.

- Madhusudan Vidali: "Performance Analysis of Two Classes of Polling Models", December 1996.
- Janel Straach: "Effective Optimization in Expert Systems", May 1998
- V. Jayakasan: "Mixed Chinese Postman Problems", May 1999
- Samit Soni: "Network Problems in Telecommunications", May 1999
- An Ge: "Optical Packet Switching Nodes and Networks", May 2000
- Don Montgomery: "The Low Power Optical Network", 2003
- Jun Luo: "On Some Geometric Optimization Problems with Applications in Manufacturing, Graph Visualization, and Structural Biology", May 2006
- Prabakar Gubbala: "Problems in Graph Connectivity", December December 2006
- Mansi Thoppian: "Medium Access Control Protocols for Cognitive Radio Based Multi-hop Wireless Networks", December 2006

¹ Finalist in National Dissertation Contest, Operations Research Society of America

² Co-Chairman

MISCELLANEOUS

Invited to act as an external examiner on seven Ph.D. dissertations: four from the University of Delhi, one from the Indian Institute of Technology, Delhi, one from the University of Michigan, Ann Arbor, and one from the Indian Institute of Technology, Kanpur.

Curriculum Vitae

Lawrence Chung

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Employment Experience:

- Associate Professor**
Dept. of Computer Science,
The University of Texas at Dallas,
Fall 2000-Present
- Assistant Professor**
Dept. of Computer Science,
The University of Texas at Dallas,
Fall 1994-Summer 2000.
- Visiting Scholar**
Center for Strategic Technology Research (CSTaR),
Andersen Consulting, Arthur Andersen & Co., Chicago,
Summer 1994.
Investigation of a systematic approach to systems reengineering, using qualitative and quantitative modeling and reasoning techniques..
- Lecturer**
Dept. of Computer Science, University of Toronto,
Fall 1993-Spring 1994.
- Software Development**
Department of Computer Science, University of Toronto,
1984-1986.
Supervised several programmers for the Taxis implementation project, involving definition of an Object-Oriented design language with assertions and long-term processes (based on the Augmented Petri-net formalism) and compilation of the language into a relational database programming language (DBPL).
- Education:**
- Ph.D.,**
Department of Computer Science, University of Toronto,
November 1993.
Thesis title: Representing and Using Non-Functional Requirements:
A Process-oriented Approach
Supervisor: Professor John Mylopoulos.
- M.Sc.,**
Department of Computer Science, University of Toronto, March 1984.
Thesis title: An Extended Taxis Compiler.
Supervisor: Professor John Mylopoulos.
- B.Sc., Honours**
Computer Science Specialist in Data Management,
University of Toronto, June 1981.

Research Interests

Software Engineering, Requirements Engineering, Non-Functional Requirements, System/Software Architecture, Electronic Business, Conceptual Modeling.

Memberships

Institute of Electrical and Electronics Engineers

Publications:

Research Monographs:

Lawrence Chung, Brian A. Nixon, Eric Yu and John Mylopoulos, *Non-functional Requirements in Software Engineering*, Kluwer Academic Publishing, 2000. 472 pp. ISBN 0-7923-8666-3.

Edited Volumes:

- L. Chung and N. Subramanian (Guest Editors), *Journal of Science of Computer Programming: Special Issue on System/Software Architectures*: 61(1), 2006.
- L. Chung (Associate Editor), *Proc. Int. Conference on Software Engineering Research and Practice (SERP'06)*, 2006.
- L. Chung and N. Subramanian (Guest Editors), *Journal of Science of Computer Programming: Special Issue on System/Software Architectures*: 57(1), July 2005.
- L. Chung and Y. Song (Editors), *Proceedings of the 6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD 2005)*, May 23-25, 2005, Towson, Maryland, USA, IEEE Computer Society 2005
- L. Chung (Associate Editor), *Proc. Int. Conference on Software Engineering Research and Practice (SERP'05)*, 2005.
- L. Chung and N. Subramanian (Guest Editors), *Journal of Systems Architecture: Special Issue on Adaptable Software/System Architectures*: 50(7), July 2004.
- L. Chung (Associate Editor), *Proc. Int. Conference on Software Engineering Research and Practice (SERP'04)*, 2004.
- N. Subramanian and L. Chung (Guest Editors), *Computer Standards & Interfaces (CS&I): Special Issue on Adaptable Software Architectures*, 25(3), 2003.
- L. Chung, Associate Editor, *Proc. Int. Conference on Software Engineering Research and Practice (SERP'03)*, 2003
- L. Chung, Associate Editor, *Proc. Int. Conference on Software Engineering Research and Practice (SERP'02)*, 2002

Book Chapters:

Lawrence Chung, Daniel Gross and Eric Yu, "Architectural Design to Meet Stakeholder Requirements", In Patrick Donohoe (Ed.) *Software Architecture*, pp. 545 - 564. Kluwer Academic Publishing, 1999. (*Proc. The 1st Working IFIP Conference on Software Architecture (WICSA1)*, Feb. 22-24, 1999, San Antonio, TX.)

Lawrence Chung, Panagiotis Katsagiaranos, Manolis Marakakis, Michalis Meritakis, John Mylopoulos and Yannis Vassiliou, "From Information System Requirements to Designs: A Mapping Framework." In Matthias Jarke (Ed.), *Database Application Engineering with DADA*, Berlin: Springer-Verlag, 1993.

Brian Nixon, Lawrence Chung, David Lauzon, Alex Borgida, John Mylopoulos and Martin Stanley, "Design of a Compiler for a Semantic Data Model." In Joachim W. Schmidt and Constantino Thanos (Eds.), *Foundations of Knowledge Base Management*, Berlin: Springer-Verlag, 1989, pp. 293-343.

Journal Papers:

Lawrence Chung, Nary Subramanian, Quality system and software architectures. *Sci. Comput. Program.* 61(1): 1-3 (2006).

N. Subramanian and L. Chung, "Representing and Reasoning About Agreements ... More Agreeably". *Ins Gentium 12: Special Issue on Agreements*, Univ. Baltimore School of Law, Spring 2006, pp. 205-257.

L. Chung and S. Supakkul, "Representing NFRs and FRs: A Goal-Oriented and Use Case-Driven Approach." W. Dösch, R. Y. Lee and C. Woo (Eds.), *SERA 2004: Selected and Revised Papers, Lecture Notes in Computer Science* 3647, 2006, pp. 29-41.

L. Chung and N. Subramanian, "System/Software Architectures," *Journal of Science of Computer Programming*: 57(1), July 2005, pp. 1-4.

N. Subramanian and L. Chung, "Measuring the Evolution of Legal Personality," *Ins Gentium*, Volume 1, Univ. Baltimore Center for International and Comparative Law, Spring 2005, pp. 79 - 133.

L. Chung and K. Cooper, "Defining Goals in a COTS Aware Requirements Engineering Approach," *Systems Engineering*: 7(1), 2004, pp. 61-83.

L. Chung and N. Subramanian, "Adaptable Software/System Architectures", *Special Issue on Adaptable Software/System Architectures, Journal of Systems Architecture*: 50(7), July 2004, pp. 365-366.

L. Chung and N. Subramanian, "Adaptable Architecture Generation for Embedded Systems", *Special Issue on Computer-Systems, Journal of Systems and Software*, 71(3), 2004, pp. 271-295.

Lawrence Chung and Narynan, "Architecture-Based Semantic Evolution of Embedded Systems: A Study of Remotely Controlled Systems," *Journal of Software Maintenance and Evolution* 15(2), 2003, pp. 145-190.

Lawrence Chung, Kendra Cooper and Anna Yi, "Developing Adaptable Software Architectures Using Design Patterns: An NFR Approach," *Computer Standards & Interfaces* (CS&I): 25(3), 2003, pp. 253-260.

Lawrence Chung, Kendra Cooper, Stephen Lee, Faisal Shafique and Anna Yi, "ACASA - Adaptable COTS-Aware Software Architecting," *Computer Standards & Interfaces* (CS&I) 25(3), 2003, pp. 223-231

Nary Subramanian and Lawrence Chung, "SAAA - A Tool for Developing Adaptable Software Architectures," *Computer Standards & Interfaces* (CS&I) 25(3), 2003, pp. 283-290.

Nary Subramanian and Lawrence Chung, "Towards Standardization of Adaptable Software Architectures," *Computer Standards & Interfaces* (CS&I) 25(3), 2003, pp. 211-213.

John Mylopoulos, Lawrence Chung, Stephen S. Y. Liao, Hualing Wang and Eric Yu, "Extending Object-Oriented Analysis to Explore Alternatives", *IEEE Software*: 18(1), Jan./Feb., 2001, pp. 2-6.

Narynan Subramanian and Lawrence Chung, "Testable Embedded System Firmware Development: The Out-In Methodology," *Computer Standards & Interfaces* (CS&I): 22(2000), Dec. 2000, pp. 337-352.

Tae-Ho Kim, Yeong-Tae Song, Lawrence Chung and Dung Huynh, "Software Architecture Analysis: A Dynamic Slicing Approach," *International Journal of Computer & Information Science*, 1(2), August 2000, pp. 91-103.

Michael Rawlins, and Lawrence Chung, "OO-edi or XML/EDI?: A Comparison Based on 'Non-Functional' Requirements", *Journal of Electronic Commerce*, May 1999.

John Mylopoulos, Lawrence Chung and Eric Yu, "From Object-Oriented to Goal-Oriented Requirements Analysis", *Communications of the ACM*, 42(1), pp. 31 - 37, Jan. 1999.

Lawrence Chung, Brian A. Nixon and Eric Yu, "Dealing with Change: An Approach Using Non-Functional Requirements", *Requirements Engineering Journal*, 1(4), 1996, pp. 238-259.

John Mylopoulos, Lawrence Chung and Brian Nixon, "Representing and Using Non-Functional Requirements: A Process-Oriented Approach", *IEEE Transactions on Software Engineering*, Special Issue on Knowledge Representation and Reasoning in Software Development, 18(6), June 1992, pp. 483-497.

Lawrence Chung, Panagiotis Katsagiaranos, Manolis Marakakis, Michalis Meritakis, John Mylopoulos and Yannis Vassiliou, "From Information System Requirements to Designs: A Mapping Framework," *Information Systems*, 16(4), 1991, pp. 429-461.

Brian Nixon, Lawrence Chung, David Lauzon, Alex Borgida, John Mylopoulos and Martin Stanley, "Implementation of a Compiler for a Semantic Data Model: Experiences with Taxis." In Umeshwar Dayal and Irv Traiger (Eds.), *SIGMOD Record*, 16(3), Dec. 1987, pp. 118-131.

Referenced Conference/Workshop Papers:

P. P. Sancho, C. Juiz, R. Puigjaner, L. Chung and N. Subramanian, "An Approach to Ontology-aided Performance Engineering through NFR Framework," *Proc. International Workshop on Software Performance (WOSP'07)*, Buenos Aires, Argentina. ACM (Order No. 488073) Feb. 5-8, 2007, pp. 125-128.

E. Oladimeji, S. Supakkul and L. Chung, "Security Threat Modeling: A Goal-Oriented Approach," *Proc. International Conference on Software Engineering and Applications (SEA'06)*, Dallas, TX, Nov. 2006.

S. Supakkul and L. Chung, "Capturing and Reusing Functional and Non-Functional Requirements Knowledge," *Proc. IEEE International Conference on Information Reuse and Integration (IRI 2006)*, pp. 539-544.

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- N. Subramanian and L. Chung, "Adaptable Architecture Generation for Mobile Telepresence," Working Memo.
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- Narayanas Subramanian and Lawrence Chung, "Testable and Adaptable Architectures for Embedded Systems," Working Memo.

S. Supakul and L. Chung, "A Scalable Application Framework for Pervasive Computing Device," Working Memo.

L. Chung and N. Subramanian, "POMSAA," Working Memo.

Michael Rawlins and Lawrence Chung, "OO--edi or XML/EDI?: A Comparison Based on 'Non-Functional' Requirements," in preparation.

Lawrence Chung, "Modeling and Analysis of Dynamic Webpages," in preparation.

Lawrence Chung and Ahamed Jemal, "Distributed Collaborative Processing: The COBRA Project," (in preparation).

Erie Yu, Lawrence Chung, Niloo Hodgeji, Daniel Gross, Tom Gray, Serge Mankovski, "Applying Non-Functional Requirements Analysis to an Existing Project--An Experience Report," in preparation.

Lawrence Chung, Dung T. Huynh and Tae-Ho Kim, "Towards Fault-Tolerant Software Architecture Using Dynamic Slicing," in preparation.

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Lawrence Chung, John Mylopoulos and Eric Yu, "From QFD to the NFR Framework", in preparation.

Lawrence Chung and Eric Yu, "Knowledge Engineering Quality Requirements", in preparation.

Lawrence Chung, "Goal-Oriented Analysis of System-wide Qualities During Software Architectural Composition", in preparation.

Lawrence Chung, "Goal-Oriented Scenario Analysis", in preparation.

Lawrence Chung, "Representing and Using Adaptability Requirements", in preparation.

Professional Activities:

Editorial Board member, *Requirements Engineering, International Journal*, 1998-present.

Journal of Software Engineering and Applications (JSEA), 2007.

Program Co-Chair:

- 6th Int. Workshop on System/Software Architectures (IWSSA '07), June, 2007
- The first IEEE International Workshop on Development and Application of Knowledge Based Software Engineering Tool (KASET), 2007
- UKC Information and Communication Technology Symposium (UKC-ICTS'07)

Program Committee member:

- 2nd Int. Working Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 2007).
- 2nd Workshop on Middleware and Performance (WQMP'07)
- 8th Int. International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2007), 2007
- IEEE/ACIS Int. Conf. on Software Engineering Research and Application (SERA '07)

Strategic Grant panel reviewer, HK City University, 2007

Councilor, Korean Scientists and Engineers Association (KSEA), 2007.

Advisory Board member, Korean Computer Scientists and Engineers Association in America (KOCSEA), 2007.

Steering Committee member:

NSF Workshop on Interoperability of Software (WINS), June 2006

Program Co-Chair:

- 5th Int. Workshop on System/Software Architectures (IWSSA '06), June, 2006
- UKC Information and Technology Symposium (UKC-ICTS '06), August 2006
- KOCSEA Technical Symposium, December 2006

Proceedings Co-Chair, Int. Conf. on Component-Based Software Systems (ICCBSS2006), Feb. 12-17, Orlando, Florida

Publicity Co-Chair:

- 5th IEEE/ACIS Int. Conference on Computer and Information Science (ICIS 2006), July 2006
- 1st IEEE/ACIS Int. Workshop on Component-Based Software Engineering, Software Architecture and Reuse (COMSAR06)

Program Committee member:

- 2nd Int. Working Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 2006)
- 11th Systems Engineering Test & Evaluation Conference (SETE 2006)
- IRMA: Software Engineering Technologies Track, Washington, May, 2006;
- IEEE/ACIS Int. Conf. on Software Engineering Research and Application (SERA '06), Aug. 2006
- 5th IEEE/ACIS Int. Conference on Computer and Information Science (ICIS 2006), July 2006
- 1st IEEE/ACIS Int. Workshop on Component-Based Software Engineering, Software Architecture and Reuse (COMSAR06)
- 7th Int. International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2006), May 2006
- Asian Pacific Software Engineering Conference (APSEC'06).
- Baltic DB&IS 2006

Councilor, Korean Scientists and Engineers Association (KSEA), 2006.

Advisory Board member, Korean Computer Scientists and Engineers Association in America (KOCSEA), 2006.

Program Co-Chair:

- 2nd IEEE ICSE-MPEC Workshop (Models and Processes for the Evaluation of Off-The-Shelf Components), May, 2005.
- 4th Int. Workshop on System/Software Architectures (IWSSA '05), June, 2005

- 6th Int. International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD2005), May 2005

Program Committee member:

- CAINE-2005, Hawaii, Nov. 11-12, 2005
- SERA '05, Michigan, August 11-13, 2005
- ICIS'05, Jeju Island, Korea, July 14-16, 2005
- 7th Int. Workshop on Software Performance (WOSP '05), 2005.

Advisory Board member, Korean Computer Scientists and Engineers Association in America (KOCSEA), 2005.

Program Committee member:

- Int. Workshop on Requirements Engineering on COTS (RECOOTS '04).
- Embedded and Ubiquitous Software Engineering Workshop (EUSE '04), held jointly with APSEC '04, 2004.

NSF Panel Reviewer, 2004.

NSERC (Canadian National Science and Engineering Research Council) Panel Reviewer, 2004.

MIPS (Maryland Industrial Partnerships Program) Reviewer, 2004

Netherlands Jacquard Program Panel Reviewer, 2004.

Program Co-Chair, Int. Workshop on Systems/Software Architectures (IWSSA '04), 2004.

Program Committee member/Publicity Chair/Session Chairs, 2nd ACIS Int. Conf. on Software Engineering Research, Management and Applications (SERA2004)

Advisory Board member, Korean Computer Scientists and Engineers Association in America (KOCSEA), 2004.

President, Korean Computer Scientists and Engineers Association in America (KOCSEA), 2002-2003.

NSERC (Canadian National Science and Engineering Research Council) Panel Reviewer, 2003.

Member:

- ESC (Embedded Systems Center), The University of Texas at Dallas, 2000-2002.
- SAIJAL (The Security Analysis and Information Assurance Laboratory)

Program Co-Chair:

- Information & Communication Technology Symposium (ICTS'03), 2003.
- Int. Workshop on Adaptable Software Architectures (WASA '03), 2003.

Program Vice Chair, Information & Communication Technology Symposium (ICTS'02), 2002.

NSERC (Canadian National Science and Engineering Research Council) Panel Reviewer, 2002;

Session Co-Organizer, Adaptable Software Architectures, at Software Engineering Research & Practice, 2002.

Program Committee member, IEEE Symposium on Application-Specific Software Engineering and Technology, 2000.

Program Committee member, IEEE International Symposium on Requirements Engineering, 1999.

Invited Workshop Participant, IFIP Working Group 2.9 on Requirements Engineering, Duck Key, MI, Jan. 1999.
Program Committee member, IEEE Symposium on Application-Specific Software Engineering and Technology, 1999.
Webmaster, Korean Computer Scientists and Engineers Association in America (KOCSEA), 1999.

Member, CASSE (Center for Application-Specific Systems and Software Engineering), The University of Texas at Dallas, 1998-2000.

Finance Chair, IEEE Workshop on Application-Specific Software Engineering and Technology, 1998.

Session Chair, IEEE Workshop on Application-Specific Software Engineering and Technology, Software Engineering II, 1998.

Program Committee member, IEEE Workshop on Application-Specific Software Engineering and Technology, Software Engineering II, 1998.

Program Committee member, IEEE International Symposium on Requirements Engineering, 1997.

Invited participant, IFIP Working Group 2.9 on Requirements Engineering, Eugene, OR, June 1996.

Reviewer,

Transactions on Software Engineering, 2007; Information & Software Technology, 2007; Int. Journal on Artificial Intelligence Tools, 2007;
Transactions on Software Engineering, 2006; Communications of the ACM, 2006; Journal of Systems and Software, 2006; Transactions on Systems, Man, and Cybernetics, 2006; Data & Knowledge Engineering, 2006; Electronics and Telecommunications Research Institute Journal, 2006;
Transactions on Software Engineering, 2005; KAIS, 2005; Transactions on Systems, Man, and Cybernetics, 2005; Knowledge and Information Systems, 2005; IEEE Software, 2005; Knowledge and Information Systems, 2005; Encyclopedia of Computer Science and Engineering, 2005;
Transactions on Software Engineering, 2004; Journal of Software Maintenance and Evolution, 2004; IEEE Software, 2004;
Transactions on Software Engineering, 2003; Information Systems, 2003; Transactions on Systems, Man, and Cybernetics, 2003; Knowledge and Information Systems, 2003;
Transactions on Software Engineering, 2002;
Journal of Software Maintenance and Evolution, 2002; Information Systems, 2002;
Annals of Software Engineering, 2001; Information Technology and Management, 2001;
International Journal on Software Engineering and Knowledge Engineering, 2001; IEEE Computer, 2001;
IEEE Computer, 2000; Software - Practice & Experience, 2000; Knowledge and Information Systems, 2000; Computer Standards & Interfaces, 2000;
ACM Transactions on Software Engineering and Methodology, 1999; Knowledge and Information Systems, 1999; Software Practice & Experience, 1999;
IEEE Transactions on Software Engineering, 1998; The 9th International Symposium on Software Reliability Engineering - ISSRE '98, 1998;
IEEE Transactions on Software Engineering, 1997; Automated Software Engineering, 1997;
Requirements Engineering Journal, 1996-1997; IEEE Computer Magazine, 1997; Information Sciences, 1996; The 7th International Symposium on Software Reliability Engineering, 1996;
COMPSAC'96: Data and Knowledge Engineering, 1996;
International Conference on Data Engineering, 1993; International Conference on Management of Data, 1992; AI '92 Conference, Canadian Society for Computational Studies of Intelligence, 1992.

Theses Supervision:

Sam Supaktul, *Model-Driven Software Development: A Non-Functional Requirements Approach*, Ph.D. Thesis, underway.

Weimin Ma, *Component Reuse during Requirements Engineering and Architectural Design*, Ph.D Thesis, underway.

Ebenzeze Oladimeji, *Security Requirements and Architectures: An NFR Approach*, Ph.D Thesis, underway.

Ingrid Lee, *Understanding and Improving an Animation: A Requirements Engineering Approach*, MS Thesis, 2006.

Sourabh Antani, *An NFR Assistant*, MS Thesis, 2006.

Narayanan Subramanian, *Adaptable Software Architecture Generating Using The NFR Approach*, Ph.D. Thesis, Spring 2003.

Tae-Ho Kim, *Dynamic Slicing for Analysis of Software Architecture*, Ph.D. Thesis Work.

Jing Wang, *Middleware Systems*, Ph.D. Thesis Work

Lei Zhang, *Requirements and Architecture Engineering Approaches for Using COTS*, Ph.D. Thesis Work

Anna Yi, *Non-Functional Requirements*, Ph.D. Thesis Work

Anna Yi, *Collaborative Behavioral Requirements Specification Using Condition-Action Petri-Net*, MS Thesis, Dec. 2002.

Faisal Shafiq, *Supporting CARE Methodology with Knowledge Based Tool for Telepresence System*, MS Thesis, Dec. 2002.

Ahamed Jemal, *Towards Distributed, Collaborative computing paradigm. An experimental Approach*, MS Thesis, Apr. 2001.

Michael Rawlins, *Developing "Good-Enough" EDI Standards*, MS Thesis, Dec. 2000.

Quan Tran, *A Case Tool for Dealing with Non-Functional Requirements*, MS Thesis, 1998.

Theses Committee:

Sheng Yang, *A Model-Driven Approach to Design Pattern Visualization and Evolution*, Fall 2006.

Anaya, Anil Yelankar, *Implementation of Influence-Reaction Model and Acquaintance Model for the Divas Multi-Agent System*, MS thesis, Fall 2006.

Yu Qian, *Pattern Discovery in Spatial, Image, and Biological Data*, Ph.D. thesis, Spring 2006.

Jian Liu, *Pattern-Directed Code Synthesis for Component Based Software Engineering*, Ph.D. thesis, Spring 2005.

Lirong Dai, *An Aspect-Oriented Architectural Framework: Formal Design Analysis Framework*, Ph.D. thesis, Fall 2005.

Gary Leask, *Agent Environments*, MS thesis, Fall 2005.

Rucha Khisti, *Component Framework for Resource Management Systems*, MS thesis, Spring 2005.

Jyothi Katragadda, *O-XML Specifications for the COTS-Aware Requirements Engineering Models*, MS thesis, Dec. 2004.

Sung Kim, Ph.D thesis, 2004 (completed under the supervision of Dr. F. Bastani).

Tropa Chowdhury, *Case study: Evaluating the Effectiveness of using the COTS-Aware Requirements Engineering and Software Architecting Approach on a distributed, concurrent groupware application*, MS thesis, April 2004.

Helle Trolldborg Gowan, *Software Agent Task Scheduling*, MS thesis, November 2003.

Saravanan Suresh Kumar, *Using NLP Tools for Requirements Visualization*, MS thesis, Spring 2003.

Zhigang Li, *Dynamic Information Visualization of Agent-Based Systems*, Spring 2002.

Johanna Dahl, *Version Control of Ericsson's Charging System*, 2001.

Leslie Douglas Lott, *Software Failure Cost Estimation*, 2001.

Rodolfo Castello, Ph.D. Thesis, December 2000.

Filemon Ramirez-Perez, *Contributions to Stat Noise on Cluster Processes with Cluster Marks*, December, 1999.

Christoffer Bergman, *Language Constructs for Relational Programming*, MS Thesis, April 1999.

Anders Palsson, *Run Time Environment for Relational Programming*, MS Thesis, April 1999.

Yeong-Tae Song, *Dynamic Program Slicing*, Ph.D. Thesis, May 1999.

Janell Strauch, *Effective Optimization in Expert Systems*, Ph.D. Thesis, May 1998.

Sridhar Alagar, *Techniques for Testing and Supporting Mobility in Distributed Systems* Ph.D. Thesis, December 1996.

Masters/Research Project Supervision:

Spring 2006
H. Chen, Animation of the Home Appliances Control System
Y. Lee, Animation of the CAT Project
J. Lin, Animation of the CAT Project
A. Solarpurkar, Animation of the CAT Project

Fall 2005
L. Bishop, Web Site Development for the Component-Aware Technology Project
Y. Zhou, Web Site Development for the Sweet Home Project
A. Nandakumar, Component-Aware Technology Tool Support

Summer 2005
C. Mou, Dynamic Webpage Development for the Sweet Home Project

Spring 2005
D. Seelamsetti and A. Gupta, The CARE Assistant Tool in .NET
N. Vaisiyya, The CARE Assistant Tool in J2EE

Fall 2004
Chopra, Anol, The CARE Assistant Tool
Haq, Newshreen, The CARE Assistant Tool
Janakiraman, Archana, The CARE Assistant Tool
Sharma, Dhiceraj, The CARE Assistant Tool

Sharma, Pranav, The CARE Assistant Tool
Subramaniam, Swathika, Software Engineering (make-up)

Spring 2004

Ahuja, Rajesh T., The CARE Assistant Tool
Anani, Sourabh S., The Non-Functional Requirements Assistant Tool
Chickens, Anupama R., Design Patterns for Home Appliance Control System
Shah, Tejesh K., The Non-Functional Requirements Assistant Tool
Sharma, Pranav, The CARE Assistant Tool
Vulcan, William F., Developing Music Software to J2EE
Supakkul, Sam, Dealing with both NFRs and FRs
Wang, Jing, NFRs and Design Patterns

Fall 2003

S. Bhattacharjee and J. Malkareddy, Developing a Collaborative Computing Platform Using J2EE
M. Nagrath, Developing a CARE Repository System Using .NET
P. G. Pakhare, Software Components for Home Appliance Control Systems
B. Seshadri, Developing a Home Appliance Control System Using .NET
X. Wang, Developing a Web Search Engine Using .NET

Summer 2003

H. W. Chan, Developing a Collaborative Computing Platform Using J2EE
C. Shang, An NFR-Based Comparison of J2EE and .NET
H. Li, An NFR-Based Comparison of J2EE and .NET
R. Indupuri, Developing a Home Appliance System Using .NET
P. K. Achanta and S. Doddakashi, Developing a Home Appliance System Using J2EE

Spring 2003

Y. Jin and J. Li, Engineering Dynamic Webpages Using Flash and UML
J. C. Ho, Using XML for Communication, Dynamic Webpages and Database

Fall 2002

K. Lee, A Tool for COTS-Aware Requirements Engineering and Software Architecting
H. Kaur and S. Wenjing, Development of a Web-search Engine Using J2ME
Y. Jin and L. Liu, Webpage Development Using Rational Rose and Flash
S. Lu, Development of a Home Appliance Control System Using J2EE and Design Patterns
J. Qi and X. Shao, Development of a Virtual Office Tool Using J2EE

Summer 2002

Y. Zheng, Development of a Web-search Engine Using .Net
Y. Xu, Development of a Web-search Engine Using J2EE
T. Dinh, Dynamic Webpage Development for a Distance Learning Course
G. Sarabia and T. Nguyen, Dynamic Webpage Development Using Rational Rose and Flash

Spring 2002

G. Sarabia and S. Wang, Dynamic Webpage Development Using Rational Rose and Flash
Yiyi Chen, Groupware Systems, Ph.D
K. Lee, A Tool for COTS-Aware Requirements Engineering and Software Architecting
F. Xu and H. Xu, J2EE and Design Patterns
H. Chen, F. Guo, B. Liu, X. Shao, K. Shen, L. Zhang, H. Zhu, Y. Zhu, Virtual Office in the Distributed, Collaborative Computing Paradigm
J. Wang, Design and Implementation of a Web-Based System for a Professional Organization

Fall 2001

S. Mehta, J2EE and Design Patterns
X. Zhao, Dynamic Webpage Development Using Rational Rose and Flash

J. Ho, J. Li, X. Qiao, C. Vernikov, W. Wu, H. Zhang, Virtual Office in the Distributed, Collaborative Computing Paradigm

Summer 2001

T. Han, J. Ho, J. Li, Y. Liang, W. Shuai, H. Wang, Virtual Office in the Distributed, Collaborative Computing Paradigm

Spring 2001

N. Jiang, H. Li, W. Li, C. Ling, Y. Ma, B. Shi, W. Xia, S. Yang, Virtual Office in the Distributed, Collaborative Computing Paradigm
V. Giruka and R. Srivari, Dynamic Webpage Development Using Rational Rose and Flash

2000-2001

F. Luo and T. Wang, Real-Time Data Streaming with Adaptive Communication

2000

R. Champion, Supporting Web-based Sports Organization Activities
C. Chadwick and C. Chesnut, Development of a Web-Based Doctor's Appointment System: eAppointment.com
J. Chen, X. Fu, S. Liu, W. Sun, L. Tang, A. Yen, Virtual Office in the Distributed, Collaborative Computing Paradigm
J. Chigurupati, S. Golegani, Q. Lin and H. Tao, Dynamic Webpage Development Using Rational Rose and Flash

1999

S. Gupta, Analysis of Software Architectural Quality
B. Young, Dynamic Webpage Development Using Flash
J. Peterson, Software Architecture Assistant
A. Jemai, The Distributed, Collaborative Computing Paradigm: Issues and Directions, 1999.
Under NSF Alliance Student Research Program.
E. Chi, G. Jou, M. Kolanalli, X. Shi, Yi, Bing, H. Wei, C. Zhang, Virtual Office in the Distributed, Collaborative Computing Paradigm
A. Palsom, X. Liu, The NFR Assistant
T. Tinker, Internet-based Software Inspection

1998

C. Hin, D. Wang, F. Lin, H. Kalahasti, J. Mekala, M. Garg, M. Li, N. K. Yeddula, P. Ravindranathan, P. Chun, P. He, S. Gupta, S. Chen, Z. Wei, COBRA: Collaborative Behavioral Requirements and Architecture
J. Kelly, Analysis of Architectural Design Using the NFR Framework
D. Stockelman, Reverse Engineering Architectural Design
S. Rose, Goal-Oriented Architectural Design: A Soldier Phone System

1997

H. Gholoon, Usability Engineering: A Non-Functional Requirements Approach
M. Essminger, G. Hart, S. Wells, J. Zhang, R. Zhang, The NFR Assistant Using a Multi-Paradigm Environment
J. Lian, Evaluation of A New Testing Methodology at Nortel
D. Storer, A Software Architecture Assistant
M. Neumann, M. Xu, Augmented Petri-net
P. Ravindranath, S. Srivivasan, Y. Tang, Augmented Petri-net on Internet
Q. Tran, Augmented Petri-net in Java, Senior Honours Thesis

1996

X. Lin, A Software Architecture Assistant

Grants/Awards:

Usability Study on a Home Appliance Control System, with K. Cooper, \$5,000 gift (\$2,500 cash, \$2,500 equipment), Visionic, Inc., 03/01/06 - unlimited

Model-Driven Requirements Engineering for Component Based Applications, With K. Cooper, \$498,323, NSF 05-576, 09/01/2006-08/31/2009, proposal submitted.

Effective COTS-Aware Requirements Engineering, With K. Cooper, \$60,000, Texas Enterprise Fund, 06/01/2005-08/31/2006

Achievement award from World Academy of Sciences, 2005, for the 2004 International MultiConference in Computer Science.

Achievement award from World Academy of Sciences, 2004, for the 2004 International MultiConference in Computer Science.

Achievement award from World Academy of Sciences, 2003, for the 2003 International MultiConference in Computer Science.

Achievement award from World Academy of Sciences, 2002, for the 2002 International MultiConference in Computer Science.

Assessment of the Impact of Software Architecture on Software Quality, With F. Bastani and S. Nafos, \$25,000, Alcatel, 01/01/99 - 12/31/99.

Managing Complexity in the Development of Telecommunications Software, With F. Bastani and S. Nafos, \$25,000, Alcatel, 01/01/99 - 12/31/99.

Establishing a Computer-Aided Education Environment using the Web-Lecture System, With I. Yen, DT Huynh, R. Mittl, B. Pervin, R. Prakash and S. Venkatesan (Co-PI), \$38,000, Nortel, 07/01/98 - 08/01/2000.

Quality Analysis of a Telecommunication System, Lawrence Chung (as a Visiting Researcher), approx. CDN\$6,000, Univ. of Toronto (ITRC), Summer 98.

IRA, With Dasuratha Chhillale, \$3,565, UniComp Technologies, 10/05/98 - 12/01/98.

IRA, With Jin Shen, \$5,100, USA Display Llc, 05/12/97 - 08/11/97.

IRA, With Deepika Chalmela, \$6,184, Advanced Telemarketing Corporation, 01/16/96 - 05/31/96.

Graduation Awards, University of Toronto, 1981.

Collaborations:

Agent-Oriented Approach to System Architecture: Models and Analysis Tools, With Mitel and Univ. of Toronto, 01/01/98 - 12/31/2000.

QUEST (Quality Excellence for Suppliers of Telecommunications) Forum - TI '9000, Telecommunication Systems Metrics: Data Submission and Delay Subcommittee, With other members of the faculty and Telecommunication Metrics'21 Consortium, Fall 1998 -.

Presentations, Tool Demonstrations & Posters:

L. Chung, *Component-Aware Requirements Engineering*, ETRI, Korea, July 2005.

L. Chung, *Component-Aware Requirements Engineering*, Soongsil University, Korea, July 2005.

L. Chung, "From Object-Oriented to Goal-Oriented Analysis and Design," *Intervoice Technical Summit*, Richardson, TX, Dec. 2004.

L. Chung, *Towards Autonomic Computing Software Architectures: A Goal-Oriented Approach*, *Panel on Autonomic Computing, ICTS-2003, Pasadena, CA, August, 2003*.

L. Chung and K. Cooper, "Towards A COTS-aware Requirements Engineering (CARE) Approach," *International Conference on Component-Based Software Systems (ICCBSS)*, Orlando, Florida, Feb. 4-6, 2002.

With Daniel Gross, Niloo Hodjati and Eric Yu, "Architectural Design to Meet Stakeholder Requirements," *CASCON 98*, Posters, Nov. 1998.

J. Mylopoulos, R. Reiter, H. Lesquesne, Y. Lesperance, E. Yu, B. Nixon, L. Chung, "Models and Tools for Supporting the Analysis and Redesign of Business Processes", *CASCON95*, Toronto, November 7-9, 1995.

Lawrence Chung, "A Tool for Dealing with Non-Functional Requirements," Invited talk at *Requirements engineering tools session, CASE 95, The 8th International Workshop on Computer-Aided Software Engineering*, July 1995.

Lawrence Chung, "The NFR Assistant", to NSERC visitors, Aug. 1992. Demonstration of a tool for assisting the development of quality information systems.

Lawrence Chung, "The Mapping Assistant", to ITRC visitors, Apr. 1990. Demonstration of a tool for mapping information system functional requirements into designs.

Software Tools:

These tool construction efforts are in the spirit of NSF, namely integration of research and education, where students participate in advanced research projects and learn the skills to make a smooth technology transfer of research and its results to industry.

CAT (COTS-Aware Techniques):

An intelligent, knowledge-based tool for developing software systems using Commercial-Off-The-Shelf (COTS) system components. Current emphasis lies in two phases of software development: one for requirements engineering - CARE (COTS-Aware Requirements Engineering), and the other for software architecting - CASA (COTS-Aware Software Architecting). The tool is being developed using J2EE and .NET technologies. Joint work with Dr. Kendra Cooper, and available on the web: <http://www.utdallas.edu/~weiminma/public/>

COBRA (Collaborative Behavioral Requirements and Architecture Assistant)

A tool for formulating behavioral requirements and designing 4th architecture using the APN (Augmented Petri-Net) formalism in the distributed, collaborative computing paradigm (a la Virtual Office). On-going improvements, currently using Java and CORBA, and available on the web: <http://www.utdallas.edu/~chung/>

SOAR (Software Architectural Assistant)

A tool for capturing generic knowledge of system/software architectural alternatives, exploring partial alternatives and evaluating them throughout the architectural design process. Built in Tel/Tk. <http://www.utdallas.edu/~chung/>.

The NFR (Non-Functional Requirements) Assistant

A tool for representing and reasoning with NFRs during system/software development for the clarification of NFRs, analysis of tradeoffs among design alternatives and rationalization of design decisions. Supports a goal-

Dealing with Security Requirements during the Development of... - Chung (1993) (Citation) (2 citations)
 the Development of Information Systems Lawrence Chung Department of Computer Science, University
<http://www.utdallas.edu/~chung/lp/c/ASE93.ps.Z>

Foundations of Temporal Constraint Databases - Koubarakis (1994) (Citation) (2 citations)
 Topaloglou, Dimitris Plexousakis, Brian Nixon, Lawrence Chung, Martin Stanley, David Wilkes and Murray
<http://cs.utkent.edu/~pub/VWWComp-Staff/Academics/Koubarakis/fpd-databases.ps.Z>

Using Quality Requirements To Systematically Develop Quality Software Lawrence Chung, Brian A. Nixon And Eric Yu Department Of
 Trondheim/Norway, Feb. 27, 1992. Chung[a] Lawrence Chung, Representation and Utilization of
<http://www.utdallas.edu/~chung/lp/c/HCSQ.ps>

Dealing with Change: An Approach Using Non-Functional... - Chung, Nixon, Yu (1997) (Citation) (1 citation)
 Approach Using Non-Functional Requirements 1 Lawrence Chung Brian A. Nixon Eric Yu Computer Science
<http://www.utdallas.edu/~chung/lp/c/REI/draft.ps>

Representation and Utilization of Non-Functional Requirements for... - Chung (1991) (Citation) (3 citations)
 Requirements for Information System Design 1 Lawrence Chung Department of Computer Science, University
 (Chung[a] Lawrence Chung, Representation and Utilization of
<http://www.utdallas.edu/~chung/lp/c/ASE91.ps>

Software Architecture Adaptability: An NFR Approach - Subramanian, Chung (2001) (Citation) (1 citation)
 An NFR Approach Nary Subramanian Lawrence Chung Applied Technology Division Dept. of
<http://www.utdallas.edu/~chung/lp/c/ATWPS1.pdf>

Architecture-Based Semantic Evolution: A Study of Remotely... - Lawrence Chung Nary (2001) (Citation) (1 citation)
 Study of Remotely Controlled Embedded Systems Lawrence Chung Nary Subramanian Department of Computer
<http://www.utdallas.edu/~chung/lp/c/SEM/sem1.pdf>

Achieving System-Wide Architectural Qualities - Chung, Yu (1998) (Citation) (1 citation)
 Achieving System-Wide Architectural Qualities Lawrence Chung Eric Yu Computer Science Program Department
<http://www.utdallas.edu/~chung/lp/c/NSA.ps>

Building Knowledge Base Management Systems: A Progress... - Mylonadis, Chaudhri... (1994) (Citation) (1 citation)
 Special thanks are due to our colleagues Lawrence Chung, Prof. Vassos Hadzilecos, Igor Jurisica,
<http://cs.brown.edu/pub/ibems/progress.ps.Z>

Jorge Arturo Cobb

February 28, 2007

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 Department of Computer Science
 The University of Texas at Dallas
 Richardson, Texas 75083-0688

Office: 972-883-2479
 Home: 972-396-8538
 Email: cobb@utdallas.edu

Education

Ph.D. May 1996
 The University of Texas at Austin
 Department of Computer Sciences
 Austin, TX 78712-1188
 GPA 4.00

M.A. August 1989
 The University of Texas at Austin
 Department of Computer Sciences
 Austin, TX 78712-1188
 GPA 4.00

B.S. December 1987
 The University of Texas at El Paso
 Department of Computer Science
 El Paso, TX 79968
 GPA 4.00

Academic Awards and Honors

AT&T Scholarships

- AT&T Ph.D. Scholarship (1992-1996).
- AT&T Denver Laboratories Scholarship (1986-1987).

The University of Texas at Austin Scholarships

- Microelectronics and Computer Development Fellowship (1990-1992).

The University of Texas at El Paso Scholarships and Honors

- Graduated with Highest Honors - Summa Cum Laude.
- Student Marshal of the College of Engineering for the graduation ceremonies.
- Frank N. Farah Presidential Scholarship (1986-1987).
- Lucille L. Stevens Scholarship (1984-1985).
- National Dean's List.

Ph.D. Dissertation

Flow Theory and the Analysis of Timed-Flow Network Protocols (May, 1996)

Advisor: M. G. Gouda

Employment Experience

The University of Texas at Dallas, Richardson, TX, Computer Science Department

- Associate Professor - Fall 2005 to present.

The University of Texas at Dallas, Richardson, TX, Computer Science Department

- Assistant Professor - Fall 1998 to Spring 2005.

University of Houston, Houston TX, Computer Science Department

- Assistant Professor - Fall 1995 to Spring 98.

AT&T Bell Laboratories, Murray Hill, NJ

- Member of the Technical Staff - Summer 1993 and Summer 1994, Summer internship for research in computer networks.

The University of Texas at Austin, Austin, TX

- Teaching Assistant for Database Management - Fall 1991 and Spring 1992.

AT&T Information Systems, Denver, CO

- Member of the Technical Staff - PBX programmer, 1989-1990.

Research Interests

Design and implementation of network protocols.
Quality of Service in High-speed computer networks.
Mobile computing.
Cocurrent and distributed computing.

Teaching Interests

Undergraduate: Computer Networks
Database Systems
Computer Architecture
Graduate: Computer Networks
Distributed Systems

Professional and Academic Organizations

Member of IEEE

Miscellaneous

Speak fluent Spanish

Journal Publications**In Review**

1. Jorge Cobb, "Efficient Near-Optimal Routing for Unidirectional Networks", submitted October 2003.
2. Mohamed Gouda, Jorge Cobb, Chin-Tser Huang, Srikanth Sastry, Scott Pike, "Fault-Masking in Redundant Systems", submitted March 5, 2006.

Published

1. Ravi Musunuri, Jorge Cobb, "Distributed Out-bound Load Balancing in Inter-AS Routing by Random Matchings", *Telecommunication Systems*, Springer, Vol. 34, No. 1-2, February 2007.
2. Ravi Musunuri, Jorge Cobb, "An Overview of Solutions to Avoid Persistent BGP Divergence", *IEEE Network*, Vol. 19, Issue 6, Nov.-Dec. 2005, pp. 28 - 34.
3. Jorge Cobb, Mohamed Gouda, Deepinder Sidhu, "Hello Again: Convergence of the Hello Protocol in OSPF", *Journal of High-Speed Networks*, IOS Press, Vol. 14, No. 1, 2005, pp. 39-58.
4. Jorge Cobb, "Scalable Quality of Service across Multiple Domains", *Computer Communications*, Elsevier, Vol. 28 (2005), pp. 1997-208.
5. Jorge Cobb, Miaohua Lin, "The Timely-Token Protocol", *Computer Communications*, Elsevier, Vol. 27 No. 7, pp. 569-580, 2004.
6. Jorge Cobb, Miaohua Lin, "A Theory of Multi-Channel Schedulers for Quality of Service", *Journal of High-Speed Networks*, IOS Press, Vol. 12 Nos. 1 and 2, pp. 61-86, 2002.
7. Jorge Cobb, Mohamed Gouda, "Stabilization of General Loop-Free Routing", *Journal of Parallel and Distributed Computing*, Academic Press, Vol. 62, pp. 922-944, 2002.
8. Jorge Cobb, "Preserving Quality of Service Guarantees In-Spite of Flow Aggregation", *IEEE/ACM Transactions on Networking*, Vol. 10 No. 1, pp. 43-53, February 2002.
9. Sang-Man Bak, Jorge Cobb, Ernst Leiss, "Performance Evaluation of Load-Balanced Routing via Bounded Randomization", *CLEI Electronic Journal*, Vol. 3, No. 2, December 2000.
10. Jorge Cobb, "Universal Timestamp Scheduling for Real-Time Networks", *Computer Networks*, Elsevier, Vol. 31(1999), pp. 2341-2360.
11. Jorge Cobb, Mohamed Gouda and Amal-El Nabas, "Time-Shift Scheduling: Fair Scheduling of Flows in High-Speed Networks", *IEEE/ACM Transactions on Networking*, Vol. 6, No. 3, June 1998, pp. 274-285.
12. Jorge Cobb, Mohamed Gouda, "Flow Theory", *IEEE/ACM Transactions on Networking*, Vol. 5, No. 5, Oct. 1997 pp. 661-674.

13. Jorge Cobb, Mohamed Gouda, "The Request-Reply Family of Group Routing Protocols", *IEEE Transactions on Computers*, Vol. 46 No. 6, June 1997, pp. 659-672.
14. Jorge Cobb, Mohamed Gouda, "Group Routing without Group Routing Tables, an Exercise in Protocol Design", *Computer Communications*, Elsevier, Vol. 19 (1996), pp. 1161-1174.

Invited Talks

- "Hello Again: Convergence of the Hello Protocol in OSPF", Luminy Seminar on Self-Stabilization, Marseille, France, October, 2002.

Conference Publications

1. Jorge A. Cobb, Zhe Xu, "Guaranteed Throughput in Work-Conserving Flow Aggregation Through Deadline Reuse", *IEEE International Conference on Computer Communication and Networks (IC3N)*, Arlington, Virginia, 2006, pp. 87-94.
2. Mohamed G. Gouda, Jorge A. Cobb and Chio-Tser Huang, "Fault Masking in Tri-redundant Systems", *Stabilization, Safety, and Security of Distributed Systems*, Springer Lecture Notes in Computer Science # 4280, 2006, pp. 304-313.
3. Jorge A. Cobb, "On the Complexity of Channel Assignment for Real-Time Flows", *IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)*, Dallas, TX, November 2006, paper # 513-142 (8 pages).
4. Jorge A. Cobb, Zhe Xu, "Maintaining Flow Isolation in Work-Conserving Flow Aggregation", *IEEE GLOBECOM* 2005, St. Louis, Missouri.
5. Ravi Musunuri, Jorge Cobb, "Hierarchical-Battery Aware Routing in Wireless Sensor Networks", *IEEE Vehicular Technology Conference*, Vol. 4, September 2005, pp. 2311-2315.
6. Ravi Musunuri, Jorge Cobb, "Distributed Out-bound Load Balancing in Inter-AS Routing by Random Matchings", *IEEE International Conference on Computer Communication and Networks (IC3N)*, October 2005, pp. 469-475. **Candidate for Best Paper Award.**
7. Ravi Musunuri, Jorge Cobb, "Comprehensive Solution for Anomaly-Free BGP", *The 5th IEEE International Workshop on IP Operations & Management*, October 26-28, 2005, Barcelona, Spain, Springer Lecture Notes in Computer Science (LNCS-3751), pp. 130-141.
8. Ravi Musunuri, Jorge Cobb, "Enforcing iBGP Convergence", *IEEE International Conference on Networks (ICON)*, Singapore, November, 2004.
9. Jorge Cobb, Ravi Musunuri, "Enforcing Convergence in Inter-Domain Routing", *IEEE Global Telecommunications Conference (GLOBECOM)*, Dallas, November, 2004.
10. Ravi Musunuri, Jorge Cobb, "A Complete Solution to Stable iBGP", *IEEE International Conference on Communications (ICC)*, Paris, June, 2004.
11. Ravi Musunuri, Jorge Cobb, "Scalable iBGP through Selective Path Dissemination", *IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)*, November, 2003.
12. Hua Zhu, Imrich Chlamtac, Jorge Cobb, and Guoping Zheng, "SMART: A Synchronization Scheme for Providing Multimedia Quality in the Emerging Wireless Internet", *IEEE Vehicular Technology Conference*, October 2003.

13. Jorge Cobb, Mohamed Gouda, Ravi Musunuri, "A Stabilizing Solution to the Stable Path Problem", *Symposium on Self-Stabilizing Systems*, Springer-Verlag Lecture Notes in Computer Science 2704, June 2003.
14. Jorge Cobb, "Forward-Only Unidirectional Routing", *IEEE International Conference on Computer Communication and Networks (IC3N)*, October 2002, Miami, Florida.
15. Jorge Cobb, Miaohua Lin, "The On-Time Timed-Token Protocol", *IEEE GLOBECOM 2002*, Taipei, Taiwan.
16. Jorge Cobb, Miaohua Lin, "End-to-End Delay Guarantees for Multiple-Channel Schedulers", *IEEE International Workshop on Quality of Service (IWQoS)*, May 2002.
17. Jorge Cobb, "Preserving Quality of Service without Per-Flow State", *IEEE International Conference on Network Protocols (ICNP)*, November 2001.
18. Jorge Cobb, Mohamed Gouda, "Stabilization of Routing in Directed Networks", *Fifth Workshop on Self-Stabilizing Systems (WSS)*, Springer-Verlag Lecture Notes in Computer Science 2194, October 2001.
19. Jorge Cobb, "On The Selection of Optimum Paths in Computer Networks", *IEEE International Conference on Communications (ICC)*, June 2001.
20. Qiyang Fang, Jorge Cobb, Ernst Leiss, "A Pre-Selection Routing Scheme for Virtual Circuit Networks", *IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)*, 2000.
21. Jorge Cobb, "Convergent Multi-Path Routing", *IEEE International Conference on Network Protocols, IEEE International Conference on Network Protocols (ICNP)*, November 2000.
22. Sang-Man Bak, Albert Cheng, Jorge Cobb, Ernst Leiss, "Load-Balanced Routing and Scheduling for Real-Time Traffic in Packet-Switched Networks", *IEEE Conference on Local Computer Networks (LCN)*, 2000.
23. Jorge Cobb, "An In-Depth Look at Flow Aggregation for Quality of Service", *IEEE International Conference on Network Protocols*, 1999.
24. Jorge Cobb, "Dynamic Multicast Trees", *IEEE International Conference on Networks (ICON)*, 1999.
25. Sang-Man Bak, Jorge Cobb, Ernst Leiss, "Load-Balanced Routing via Bounded Randomization", *IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)* 1999.
26. Sang-Man Bak, Jorge Cobb, Ernst Leiss, "Hierarchical Load-Balanced Routing via Bounded Randomization", *IEEE International Conference on Computer Communication and Networks (IC3N)*, 1999.
27. Sang-Man Bak, Jorge Cobb, "Randomized Distance Vector Routing Protocol", *ACM Symposium on Applied Computing*, 1999.

28. Jorge Cobb, "Preserving Quality of Service Guarantees In-Spite of Flow Aggregation", *IEEE International Conference on Network Protocols (1998)*, 1998, selected for fast-track publication in *IEEE/ACM Transactions on Networking*.
29. Jorge Cobb, "Fault-Tolerant Multi-Metric Routing", *IASTED Principles of Distributed Computing and Networks (PDCN)*, 1998.
30. Jorge Cobb, "Universal Timestamp Scheduling", *16th IASTED International Conference on Applied Informatics*, 1998.
31. Jorge Cobb, Mohamed Gouda, "Balanced Routing", *IEEE International Conference on Network Protocols*, 1997.
32. Jorge Cobb, Mohamed Waris, "Propagated Timestamps: A Scheme for the Stabilization of Maximum Flow Routing Protocols", *Third Workshop on Self-Stabilizing Systems (WSS)*, 1997.
33. Jorge Cobb, Mohamed Gouda, "Group Routing without Group Routing Tables", *IEEE International Conference on Distributed Computing Systems (ICDCS)*, 1996, selected for fast-track publication in *IEEE/ACM Transactions on Networking*.
34. Jorge Cobb, Mohamed Gouda, Amal El-Nahas, "Time-Shift Scheduling: Fair Scheduling of Flows in High-Speed Networks", *IEEE International Conference on Network Protocols (ICNP)*, 1996, selected for fast-track publication in *IEEE/ACM Transactions on Networking*.
35. Jorge Cobb, Mohamed Gouda, "Ordered Delivery over One-way Virtual Circuits", *IEEE Symposium on Computers and Communications (SCC)*, 1995.
36. Jorge Cobb, Prathima Agrawal, "Congestion or Corruption: A Scheme for Efficient Wireless TCP Sessions", *IEEE Symposium on Computers and Communications (SCC)*, 1995.
37. Jorge Cobb, Mohamed Gouda, Amal El-Nahas, "Flow Timestamps", *International Conference on Computer Science and Informatics*, 1995.
38. Jorge Cobb, Mohamed Gouda, Prathima Agrawal, "Protocol Synchronization with Sparse Timestamps", *Protocol Specification, Testing and Verification (PSTV) XIV*, edited by Son T. Young and Samuel T. Chanson, Chapman and Hall publishers, 1994.
39. Jorge Cobb, Chris Edmondson-Yurkanan, Mohamed Gouda, "Universal Mobile Addressing in The Internet", *IEEE Workshop on Mobile Computing Systems and Applications*, 1994.
40. Jorge Cobb, Mohamed Gouda, "Flow Theory: Verification of Rate-Reservation Protocols", *IEEE International Conference on Network Protocols (ICNP)*, 1993.

Funding

- "Stable Quality of Service Guarantees", \$30,000, Erik Jonsson School of Engineering & Computer Science Internal grant, 2004.
- "Optical Pseudo Channels: using the Optical Layer to Minimize Queuing Delays for Real-Time Traffic", Principal Investigator, Texas Advanced Research Program, \$101,150, in collaboration with Co-PI Andrea Fumagalli, 1/2000-12/2001
- "Mobility Simulation", Principal Investigator, Northern Telecom, \$75,000, 1/1999-12/1999.

Student Supervision

Ph.D. Theses

- "Randomized Routing Algorithms", Sang-Man Bak, co-supervised by Prof. Ernst Leiss, May 2000 (University of Houston), currently at a Telecom company, Korea.
- "Protocols for Convergence and Load-balancing in Inter-domain Routing", Ravi Musunuri, UT Dallas, Summer 2006, currently at CISCO systems, California.

Ph.D. Theses in Progress

- "High-Performance Scheduling for QoS", Zhe Xu, UT Dallas, expected Spring 07.
- "Efficient Sensing Algorithms", Gang Jiang, expected Spring 09.

Master Theses

- "Adaptable Multicast Trees", Mohamad Khan, December 2000 (University of Houston).
- "A Pre-Selection Routing Scheme for Virtual Circuit Networks", Quiyan Fang, December, 1999 (University of Houston).
- "Definition and Implementation of the Balanced Routing Protocol", Joseph Chedraoui, December, 1999, (University of Houston).
- "Advanced Flow Aggregators", Madhura Joglekar, August, 1999 (University of Houston).
- "Last Hop Acknowledgments", Venkatesh Muthu, May 1998 (University of Houston).
- "Maximum Flow Routing", Mohamed Waris, May 1998 (University of Houston).

Service

Journals

Associate Editor, *Journal of High Speed Networks*, IOS Press.

Co-Editor, *Wireless Networks* special issue on selected papers from the QShine '04 conference.

Reviewer for IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Networking, IEEE Communication Letters, Computer Networks (Elsevier), Computer Communications (Elsevier), among others.

Chair Technical Program Committees

TPC Co-chair, First International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine), 2004.

TPC Co-chair, Autonomous Distributed Systems and Networks, 2002.

Conference Technical Program Committees

2007 Eighth International Symposium on Stabilization, Safety, and Security of Distributed Systems

2007 IEEE International Conference on Distributed Computing Systems (ICDCS)

2007 Autonomous Distributed Systems and Networks

2007 GLOBECOM WASNet

2007 IEEE International Conference on Network Protocols

2007 Local Computer Networks Conference

2007 International Conference on Communications (CC)

2007 International IEEE/Create-Net Conference on Test beds and Research Infrastructures for the Development of Networks and Communities

2006 Eighth International Symposium on Stabilization, Safety, and Security of Distributed Systems

2006 International Conference on AD-HOC Networks & Wireless (ADHOCNOW)

2006 Autonomous Distributed Systems and Networks

2006 GLOBECOM WASNet

2006 IEEE International Conference on Network Protocols

2006 IEEE International Performance, Computing and Communications Conference

2006 Local Computer Networks Conference

2006 IASTED Principles of Distributed Computing and Networks

2005 Local Computer Networks Conference

2005 International Conference on AD-HOC Networks & Wireless (ADHOCNOW)

2005 International Symposium on Heterogeneous Wireless Networks (ISHWN 2005)

2005 IEEE International Workshop on Radio Resource Management for Wireless Cellular Networks (RRM-WCN)

2005 IEEE International Conference on Network Protocols

2005 IEEE International Performance, Computing and Communications Conference

2005 IASTED Principles of Distributed Computing and Networks

2005 Workshop on Internet Compatible QoS in Ad hoc Wireless Networks (ICQAWN)

2004 Autonomous Distributed Systems and Networks

2004 IEEE International Performance, Computing and Communications Conference

2002 The 16th International Conference on Information Networking (ICOIN-16)

2002 International Conference Parallel and Distributed Systems

2002 IEEE International Performance, Computing and Communications Conference

2002 IEEE International Conference on Network Protocols

2001 IEEE International Conference on Network Protocols

2000 IEEE International Conference on Network Protocols

1999 IEEE International Conference on Network Protocols

1999 Workshop On Self-Stabilizing Systems

1999 Conferencia Latinoamericana de Informatica

1998 IEEE International Conference on Network Protocols

1997 IEEE International Conference on Network Protocols

1997 International Conference on Computer Science and Informatics

1996 IEEE International Conference on Network Protocols

Conference Publicity/Service

2006 Workshop on Self-Stabilizing Systems, Local Arrangements Chair and Treasurer.

2001 IEEE International Symposium on Autonomous Decentralized Systems, Publicity Chair, Web Master, and handle the submission of papers and collection of reviews.

1999 ACM Mobicom Conference, Publicity Co-Chair

University Service

2006-2007 Admissions Committee CE program

2007 Chair Department Networking Group

2005-2007 Coordinator for the ComputingFest student computer programming contest.

2006-Present Faculty Advisor for the Society of Hispanic Professional Engineers (SHPE).

2005-2007 University Core Committee for the Support of Women and Minorities

2002-present Department Networking Group

2002-present Department Undergraduate Curriculum Committee

2000-2001 University Committee on Effective Teaching

2001-2002 Information Resources Security Committee

Curriculum Vitae Kendra M. L. Cooper

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Educational History:

Ph.D., May 2001

The University of British Columbia
2329 West Mall
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Department of Electrical and Computer Engineering
Faculty of Graduate Studies
Specialization in Requirements Engineering
Dissertation: Stimulus Response Requirements Specification Notation: An Empirically Evaluated Requirements Specification Notation
Supervisor: Dr. Mabo Ito

M.A.Sc., November 1995

The University of British Columbia
2329 West Mall
Vancouver, British Columbia, Canada, V6T 1Z4
Department of Electrical and Computer Engineering
Faculty of Graduate Studies
Specialization in Requirements Engineering
Thesis: TSPN: a Petri Net Model for Specifying User Interactions in Multimedia Presentations
Supervisors: Dr. Mabo Ito, co-supervised by Dr. Son T. Vuong, Department of Computer Science

B.A.Sc., May 1993

The University of British Columbia
2329 West Mall
Vancouver, British Columbia, Canada, V6T 1Z4
Department of Electrical and Computer Engineering
Faculty of Applied Science
Computer option, co-operative education program

Employment History:

Assistant Professor

January 2001 – present
Software Engineering Group
Department of Computer Science
The University of Texas at Dallas
Mail station 31, P.O. Box 830688
Richardson, Texas, USA, 75083-0688
▪ Research area: component based engineering with an emphasis in requirements engineering and system/software architecture

Senior Systems Engineer

January 2000 – December 2000, contract/regular
Motorola Canada Ltd., Network Solutions Sector
11411 Number Five Road
Richmond, British Columbia, Canada, V7A 4Z3
▪ Analyzed and documented system level requirements for new GPRS SGSN product features
▪ Modified the system level architecture to support the new features
▪ Updated requirement processes to support multiple product lines under concurrent development and SEI CMM Level 3

Requirements Engineer

May – August 1993, contract
Hughes Aircraft of Canada Limited, Systems Division
#150 13575 Commerce Parkway
Richmond, British Columbia, Canada, V6V 2L1
▪ Analyzed, documented, and reviewed software requirements for the Canadian Automated Air Traffic Control System using the tool Interleaf in the Threads-Capabilities requirements specification technique (an in-house variation of Use Cases)
▪ Revised eight key sections of the requirement specification process standard used by all requirements authors on the project

Requirements Engineer

January 1991 - December 1991, contract
Hughes Aircraft of Canada Limited, Systems Division
#150 13575 Commerce Parkway
Richmond, British Columbia, Canada
V6V 2L1
▪ Analyzed and documented software requirements for the Canadian Automated Air Traffic Control System project using the CASE tool Software Through Pictures in Hatley and Pirbhai's Structured Analysis technique
▪ Trained team members in the Structured Analysis methodology

Sessional Instructor

Summer session 1998, Summer session 1999, Winter session 2000, contract
Department of Computer Science
The University of British Columbia
2329 West Mall
Vancouver, British Columbia, Canada, V6T 1Z4

Professional Membership, Recognition and Honors:

Membership in Professional Organizations

- Institute of Electrical and Electronics Engineers (IEEE)
- Institute of Software Engineers (ISE)
- International Council on Systems Engineering (INCOSE)
- Society of Women Engineers (SWE)

Academic Scholarships

- National Science and Engineering Research Council, Graduate Scholarship, awarded 1995
- Simons Foundation Scholarship, awarded 1995
- British Columbia Advanced Science Institute, Graduate Recruitment Scholarship, awarded 1995
- Center for Integrated Computer Science Research Top-up Award, awarded 1995
- Killam Pre-doctoral Fellowship, awarded 1998 and 1999

Original Investigation

Articles in Refereed Journals:

1. L. Chung, K. Cooper, A. Yi, "Developing Adaptable Software Architectures for Real-Time Systems Using Design Patterns", *Computer Standards & Interfaces*, Volume: 25 Issue:3, 2003, pp. 253-260.
2. L. Chung, K. Cooper, S. Lee, F. Shafique, and A. Yi, "Towards Adaptable COTS-Aware Software Architecting", *Computer Standards & Interfaces*, Volume: 25 Issue:3, 2003, pp. 223 - 231.
3. L. Chung and K. Cooper, "Defining Goals in a COTS-Aware Requirements Engineering Approach", *Systems Engineering Journal*, Volume: 7 Number 1, 2004, pp. 61-83.
4. J. Cangussu, K. Cooper, and E. Wong, "Empirical Evaluation of a Run-time Dynamic Adaptable Framework", *Journal of Software Engineering*, Volume 3, Number 3, December 2004, pp. 255-284.
5. K. Cooper, L. Dai, and Y. Deng, "Performance Modeling and Analysis of Software Architectures: An Aspect-Oriented UML Based Approach", *Journal of Science of Computer Programming, System and Software Architectures*, Volume 57, Issue 1, July 2005, pp. 89-108.
6. Hui Ma, I-Ling Yen, Dongfeng Wang, Jia Zhou, Kendra Cooper, Farokh Bastani, "A Model and Methodology for Compositional QoS Analysis of Embedded Systems", *Journal of Systems and Software*, Volume 79, Number 6, 2005, pp. 859-870.
7. K. Cooper and L. Dai, "Modeling and Performance Analysis for Security Aspects", *Journal of Science of Computer Programming*, Volume 61, Issue 1, June 2006, pp. 38 - 71.
8. L. Dai, K. Cooper, E. Wong, "Modeling and Analysis of Performance Aspects for Software System Architecture Designs: a UML Based Approach", *International Journal of Software Engineering and Knowledge Engineering*, Vol. 16, No. 3, June 2006, pp.347-378.
9. K. Cooper, S. P. Abraham, R. S. Unnithan, L. Chung, and S. Courtney, "Integrating Visual Goal Models in the Rational Unified Process", *Journal of Visual Languages and Computing*, Volume 17, Issue 6, December 2006, pp. 551-583.
10. L. Dai and K. Cooper, "Using F2AP to Bridge the Gap Between Enterprise and Software Architectures for Security", *Journal of Science of Computer Programming* (to appear).
11. K. Cooper and L. Dai, "A Survey of Modeling and Analysis Approaches for Architecting Secure Software Systems", *International Journal on Network Security* (to appear)

Journal Articles Submitted:

1. J. Zhou, K. Cooper, H. Ma, I-L. Yen, "On the Customization of Components: A Rule-based Approach", *IEEE Transactions on Knowledge and Data Engineering* (in second review).
2. S. Haider, J. Cangussu, K. Cooper, "Estimation of Defects Based on a Defect Decay Model: ED³M", *IEEE Transactions on Software Engineering* (submitted).

Journal Articles in Preparation:

1. K. Cooper and Sergiu Dascalu, "Using Software Quality Assurance Checklists in Software Engineering Education", to be submitted to *Journal of Science of Computer Programming* (in preparation).
2. E. Wong, Y. Qi, and K. Cooper, "Source Code-based Software Risk Assessment", to be submitted to *IEEE Transactions on Systems, Man, and Cybernetics* (TSMC) journal (in preparation).
3. L. Dai, K. Cooper and E. Wong, "Formal Modeling and Analysis of Security Features in Software Architectures: An Aspect-oriented Approach", to be submitted to *IEEE Transactions on Software Engineering* (TSE) journal (in preparation).

Articles in Refereed Workshops, Symposia, Conferences:

1. J. Goncalves, K. Cooper, S. Vuong, and M. Ito, "A classification of multimedia application requirements", *Proceedings of the Pacific Workshop on Distributed Multimedia Systems Conference*, Honolulu, U.S.A., pp. 135-140, March 31 - April 2, 1995.
2. S. Vuong, K. Cooper, and M. Ito, "Petri Net Models for Describing Multimedia Synchronization Requirements", *Proceedings of the International Conference on Network Protocols*, Tokyo, Japan, pp. 260-267, November 7-10, 1995.
3. S. Vuong, J. Goncalves, K. Cooper, M. Ito, and S. Stiubienier, "On Modelling Multimedia Synchronization requirements", *Proceedings of the IEEE Pacific Rim Conference on communications, computers, and signal processing*, Victoria, Canada, pp. 120-123, May 17-19, 1995.
4. J. Goncalves, K. Cooper, S. Vuong, S. M. Ito, and S. Stiubienier, "Synchronization of Multimedia Objects", *Proceedings of the IFIP WG 6.1 Fifteenth International Symposium on Protocol Specification Testing and Verification*, Warsaw, Poland, pp. 439-442, June 13-16, 1995.
5. S. Vuong, K. Cooper, and M. Ito, "Specification of Synchronization Requirements for Distributed Multimedia Systems", *Proceedings of the International Workshop on Multimedia Software Development*, Berlin, Germany, pp. 110-119, March 25-26, 1996.
6. K. Cooper, M. Ito, and S. Vuong, "Specification of an Interactive News Server Using the TSPNUI Approach", *Proceedings of the High Performance Computing Systems Conference*, Ottawa, Canada, pp. 55-62, June 5-7, 1996.
7. K. Cooper and M. Ito, "Advantages of Stimulus Response Requirement Specification Techniques for System Testing", *Proceedings of the International Council on Systems Engineering Symposium*, Vancouver, Canada, pp. 141-147, July 26-30, 1998.
8. M. Donat, K. Cooper, and M. Ito, "Capturing the logical structure of requirements for the automatic generation of test specifications", *Proceedings of the 6th International Symposium on the Development and Operation of Complex Automation Systems* (EKA 1999), Braunschweig, Germany, pp. 567-582, May 26-28, 1999.
9. K. Cooper and M. Ito, "Experimental Evaluation of the Stimulus Response Requirement Specification Notation", *Proceedings of the 4th International Conference on Empirical Assessment and Evaluation in Software Engineering*, Keele University, Staffordshire, UK, pp. 31-38, April 17-19, 2000.
10. K. Cooper and M. Ito, "An Empirically Evaluated Requirements Specification Notation", *Proceedings of the ASERC Workshop in Quantitative Software Engineering*, Banff, Alberta, Canada, pp. 19-24, February 19-22, 2001.

11. L. Chung and K. Cooper, "Towards a Model Based COTS-Aware Requirements Engineering Process", Proceedings of the Model Based Requirements Engineering Workshop, San Diego, California, pp. 53-60, November 30, 2001.
12. L. Chung and K. Cooper, "A COTS-Aware Requirements Engineering Process: a Goal-and Agent Oriented Approach", Proceedings of the International Council on Systems Engineering Symposium, Las Vegas, Nevada, CDROM index 3.5.4, pp. 1-8, July 28 - August 1, 2002.
13. K. Cooper and M. Ito, "Formalizing a Structured Natural Language Requirements Specification Notation", Proceedings of the International Council on Systems Engineering Symposium, Las Vegas, Nevada, CDROM index 1.6.2, pp. 1-8, July 28 - August 1, 2002.
14. L. Chung and K. Cooper, "A Knowledge-based COTS-Aware Requirements Engineering Approach", Proceedings of the Software Engineering and Knowledge Engineering Conference, Ischia, Italy, pp. 175-182, July 15-19, 2002.
15. L. Chung, K. Cooper, and A. Yi, "Developing Adaptable Software Architectures for Real-Time Systems Using Design Patterns", Proceedings of the International Conference on Software Engineering Research and Practice, Las Vegas, Nevada, pp. 38-43, June 24-27, 2002.
16. L. Chung, K. Cooper, S. Lee, F. Shafique, A. Yi, "Towards Adaptable COTS-Aware Software Architecting", Proceedings of the International Conference on Software Engineering Research and Practice, Las Vegas, Nevada, pp. 17-23, June 24-27, 2002.
17. L. Chung and K. Cooper, "Defining Agents in a COTS-Aware Requirements Engineering Approach", Proceedings of the 7th Australian Workshop on Requirements Engineering, Melbourne Australia, pp. 73-84, December 2-3, 2002.
18. K. Cooper, L. Dai, Y. Deng, and J. Dong, "Towards an Aspect-oriented Architectural Framework", Proceedings of the Second International Workshop on Aspect-Oriented Requirements Engineering and Architecture Design (Early Aspects), pp. 13-18, Boston, USA, March 17-21, 2003.
19. L. Chung and K. Cooper, "Defining an Architecture with a COTS-Aware Software Engineering Process", Proceedings of the International Council on Systems Engineering Symposium, Arlington, VA, pp. 1219-1228, June 29 - July 3, 2003.
20. L. Chung, K. Cooper, and A. Yi, "Architecting Adaptable Software Architecture Using COTS: An NFR Approach", Proceedings of International Conference on Software Engineering Practice and Research, Las Vegas, Nevada, pp. 155-161, June 23-26, 2003.
21. K. Cooper, L. Dai, L. Y. Deng, and J. Dong, "Developing a Formal Design Analysis Framework", Proceedings of International Conference on Software Engineering Research and Practice, Las Vegas, Nevada, pp. 68-73, June 23-26, 2003.
22. K. Cooper, J. Zhou, M. Hui, J.-L. Yen, and F. Bastani, "Code Parameterization for Satisfaction of QoS Requirements in Embedded Software", Proceedings of the International Conference on Engineering of Reconfigurable Systems and Algorithms, Las Vegas, Nevada, pp. 58-64, June 23-26, 2003.
23. M. Hui, J.-L. Yen, F. Bastani, F., and K. Cooper, "Composition Analysis of QoS Properties for Adaptive Integration of Embedded Software Components", Proceedings of the 14th IEEE International Symposium on Software Reliability Engineering, Denver, Colorado, pp. 383-393, November 17 - 20, 2003.
24. K. Cooper, L. Dai, Y. Deng, J. Dong, "Modeling Performance as an Aspect: a UML Based Approach", Proceedings of the Workshop on Aspect-Oriented Modeling with UML, in conjunction with the 6th International Conference on the Unified Modeling Language (UML), San Francisco, California, October 20-24, 2003, available at: <http://www.cs.it.edu/~oaldawud/AOM>.
25. J. Cangussu, K. Cooper, C. Li, "A Control Theory Based Framework for Dynamic Adaptable Systems", Proceedings of the 19th ACM Symposium on Applied Computing, Nicosia, Cyprus, pp. 1546 - 1553, March 14-17, 2004.
26. K. Cooper, J. Zhou, H. Ma, J.-L. Yen, F. Bastani, "Code Parameterization for Satisfaction of QoS Requirements in Embedded Software", Proceedings of the Eighth IEEE International Symposium on High Assurance Systems Engineering, Tampa Florida, pp. 302-303, March 25-26, 2004.
27. L. Chung and K. Cooper, "Matching, Ranking, and Selecting COTS Components: A COTS-Aware Requirements Engineering Approach", Proceedings of the International Workshop on Models and Processes for the Evaluation of COTS Components, 2004, Edinburgh, UK, available at: <http://www.isi.upc.es/events/mpec/mpec04/home.html>.
28. L. Chung and K. Cooper, "COTS-Aware Requirements Engineering and Software Architecting", Proceedings of the International Workshop on Systems and Software Architecting, Las Vegas, Nevada, pp. 57-63, June 22, 2004.
29. K. Cooper, L. Dai, and Y. Deng, "Performance Modeling and Analysis of Software Architectures: An Aspect-Oriented UML Based Approach", Proceedings of the International Workshop on Systems and Software Architecting, Las Vegas, Nevada, pp. 68-73, June 22, 2004.
30. J. Dong, R. Khisti, K. Cooper, and Y. Deng, "A Component Framework for Resource Management Systems", Proceedings of the Software Engineering Research and Practice (SERP), Las Vegas, Nevada, pp. 681-687, June 21-24, 2004.
31. S. Gao, Y. Deng, H. Yu, X. He, K. Bezmosov, and K. Cooper, "Applying Aspect-Oriented Designing Security Systems: A Case Study", Proceedings of the 16th International Conference on Software Engineering and Knowledge Engineering, Banff, Alberta, Canada, pp. 360-365, June 20 - 24, 2004.
32. L. Chung, K. Cooper, S. Courtney, "COTS-Aware Requirements Engineering: The CARE Process", Proceedings of the 2nd International Workshop on Requirements Engineering for COTS Components, Kyoto, Japan, September 7, 2004, available at: <http://www.isi.upc.edu/events/recois/home.html>.
33. J. Cangussu, K. Cooper, E. Wong, and X. Ma, "A Run-Time Adaptable Persistence Service using the SMART Framework", Proceedings of the Hawaiian International Conference on System Sciences, Hawaii, USA, January 3-6, 2005, Volume 9, electronic proceedings index 276.1.
34. E. Wong, Y. Qi, and K. Cooper, "Source Code-based Software Risk Assessment", Proceedings of the 20th ACM Symposium on Applied Computing, March 13 - 17, 2005, Santa Fe, New Mexico, USA, pp. 1485-1490.
35. Hui Ma, Dongfeng Wang, Farokh Bastani, J.-L. Yen, and Kendra Cooper, "A Model and Methodology for Composition QoS Analysis of Embedded Systems", Proceedings of the 11th IEEE Real Time and Embedded Technology and Applications Symposium, March 07 - 10, 2005, pp. 56-65.
36. K. Cooper, J. Cangussu, R. Lin, G. Sankaranarayanan, R. Soundararajan, and E. Wong, "An Empirical Study on the Specification of Components Using Fuzzy Logic", Proceedings of the 8th International SIGSOFT Symposium on Component-based Software Engineering: Software Components at Work, St. Louis, USA, May 14-15, 2005, pp. 155-170.
37. J. Zhou, K. Cooper, J.-L. Yen, and R. Paul, "Rule-base technique for component adaptation to support qos-based reconfiguration", Proceedings of the IEEE International Symposium on Object-oriented Real-time Computing Systems, Seattle, Washington, May 18-20, 2005, pp. 426-433.
38. L. Chung and K. Cooper, "Managing Change in a COTS-Aware Requirements Engineering Approach", Proceedings of the 2nd International Workshop on Models and Processes for the Evaluation of off-the-shelf Components, May 21, 2005, St. Louis, USA, pp. 1-4.
39. W. Ma, K. Cooper, and L. Chung, "Matching Effectiveness and COTS Model Richness", Proceedings of the 6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing, May 23 - May 25, 2005, Maryland, USA, pp. 26-31.

40. L. Dai and K. Cooper, "Modeling and Analysis of Non-functional Requirements as Aspects in a UML Based Software Architecture Design", Proceedings of the 6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing, May 23 - May 25, 2005, Maryland, USA, pp. 178-183.
41. K. Cooper, L. Chung and W. Ma, "Evaluating Off-The-Shelf Architectural Components", 4th Int. Workshop on Systems and Software Architecture, Proc. Int. Conference on Software Engineering Research and Practice, Las Vegas, NV, June 20-23, 2005, pp. 115-121.
42. K. Cooper and L. Dai, "Modelling and Performance Cost Analysis for Security Aspects: a UML Based Approach", 4th Int. Workshop on Systems and Software Architecture, Proc. Int. Conference on Software Engineering Research and Practice, Las Vegas, NV, June 20-23, 2005, Volume II, pp. 905 - 911.
43. T. Chowdhury, L. Chung, and K. Cooper, "Quantifying the Evolution of Goals in Early Requirements Engineering: A Study of the Quality Assurance Review Assistant Tool", Proceedings of the 15th International Council on Systems Engineering Symposium, July 10-15, 2005, Rochester, USA, CD proceedings Requirements Session, pp. 28-41.
44. L. Dai, K. Cooper, and E. Wong, "Modeling Reusable Security Aspects for Software Architectures: a Pattern Driven Approach", Proceedings of the 17th International Conference on Software Engineering and Knowledge Engineering, Taipei, Taiwan, Republic of China, July 14-16, 2005, pp. 217-222.
45. T. Gao, K. Cooper, H. Ma, I.-L. Yen, and F. Bastani, "Toward a UML Profile to Support Component-Based Distributed Adaptive Systems", Proceedings of the 17th International Conference on Software Engineering and Knowledge Engineering, Taipei, Taiwan, Republic of China, July 14-16, 2005, pp. 163-168.
46. K. Cooper, L. Chung, and S. Courtney, "Enhancing the Vision Document in the Rational Unified Process with a Visual Representation of Goals", Proceedings of the Workshop on Visual Modeling for Software Intensive Systems, co-located with the IEEE Symposium on Visual Languages and Human-Centric Computing, Dallas, Texas, USA, 24 September 2005, pp. 19-26.
47. K. Cooper, J. Dong, K. Zhang, L. Chung, "Teaching Experiences with UML at The University of Texas at Dallas", Proceedings of the ACM / IEEE 8th International Conference on Model Driven Engineering Languages and Systems Educator's Symposium, October 3, 2005, Montego Bay, Jamaica, pp. 1-8.
48. K. Cooper, S. Liddle, and S. Dascalu, "Experiences Using Defect Checklists in Software Engineering Education", Proceedings of the 18th International Conference on Computer Applications in Industry and Engineering, November 9-11, 2005, Honolulu, Hawaii U.S.A., pp. 402-409.
49. L. Chung, W. Ma, and K. Cooper, "Requirements Elicitation through Model-Driven Evaluation of Software Components", Proceedings of the International Conference on Component-Based Systems, Feb. 13-17, 2006, Orlando, U.S.A., pp. 187-196.
50. K. Cooper, G. Rudelis, K. Feng, A. Kansara, J. Karagadda "Requirements Engineering in Agile Development", International Conference on Component-Based Systems, Feb. 13-17, 2006, Orlando, U.S.A., electronic ed proceedings.
51. J. Zhou, K. Cooper, I. Yen, J. Linn, R. Paul, "A Software Enhancement System for Embedded Software Development", invited paper, IEEE International Symposium on Object-oriented Real-time Computing Systems, 2006, pp. 93-100.
52. J. Cangussu, K. Cooper, and E. Wong, "Multi Criteria Selection of Components Using the Analytic Hierarchy Process", in Proceedings of the 9th International SIGSOFT Symposium on Component-based Software Engineering: Software Components at Work, Västerås, Sweden, June 29 - July 1, 2006, pp. 67-81.

53. L. Dai and K. Cooper, "Helping to Meet the Security Needs of Enterprises: Using FDAF to Build RBAC into Software Architectures", 5th International workshop on System/Software Architecture, Las Vegas, USA, June 27, 2006.
54. W. Ma, K. Cooper, and L. Chung, "Component-Aware Systems Architecting: A Software Interoperability Perspective", 5th International Workshop on System/Software Architectures, Las Vegas, USA, June 27, 2006.
55. K. Tian and K. Cooper, "Agile and Software Product Line Methods: Are They So Different?", 1st International Workshop on Agile Product Line Engineering, August 21, 2006, Baltimore, Maryland, USA.
56. J. Zhou, K. Cooper, I. Yen, "QoS Data Collection: An Approach to Assist Predictable QoS Behavior Modeling in Component Based Development", 2nd International Workshop on Predictor Models in Software Engineering, September 24, 2006, Philadelphia, Pennsylvania USA.
57. K. Cooper, "Can Agility be Introduced into Requirements Engineering for COTS Component Based Development?", 1st International Workshop on Software Product Management, September 12th, 2006, Minneapolis/St. Paul, USA
58. K. Cooper, E. Wong, and D. Simmons, "Revitalizing Software Engineering Education in the 21st Century", invited paper International Conference on Software Engineering Theory and Practice, July 9 - July 12, 2007, Orlando, Florida (to appear).

Conference and Workshop Articles Submitted for Publication:

1. K. Cooper, J. Cangussu and E. Wong, "An Architectural Framework for the Design and Analysis of Autonomous Adaptive Systems", submitted to the 31st Annual International Computer Software and Applications Conference (COMPSC 2007), Beijing, July 24-27, 2007.
2. J. Cangussu, K. Cooper and E. Wong, "Reducing the Number of Test Cases for the Performance Evaluation of Components", submitted to the 19th International Conference on Software Engineering and Knowledge Engineering (SEKE 2007), July 9-July 11, 2007, Boston, USA.

Other writings:

Book Chapters:

1. K. Cooper, L. Dai, R. Steiner and R. Mili, "Survey of Software Architecture Approaches", Designing Software-Intensive Systems: Methods and Principles, to be published by Idea Group Inc. in the Fall of 2007.

Non-refereed Articles:

1. K. Cooper, "TSPN_{ur}: a Petri Net Model for Specifying User Interactions in multimedia presentations", Masters Thesis, The University of British Columbia, 1995.
2. K. Cooper, J. Joyce, and M. Ito, "Advantages of Stimulus Response Requirements Specification Techniques", The University of British Columbia, CICS_R technical report TR97-001, 1997.
3. K. Cooper and M. Ito, "Training Material for the SRRS Notation", CICS_R-TR99-001, The University of British Columbia, 1999.
4. L. Chung and K. Cooper, "A COTS-Aware Requirements Engineering (CARE) Process: Defining System Level Agents, Goals and Requirements", TR UTDCS-23-01, Department of Computer Science, The University of Texas at Dallas, 2001.

5. K. Cooper, "Stimulus Response Requirements Specification Notation: An Empirically Evaluated Requirements Specification Notation", Ph.D. thesis, The University of British Columbia, Canada, 2001.
6. L. Chung, K. Cooper, and D. T. Huynh, "COTS-Aware Requirements Engineering Technique", Proceedings of the 2001 Workshop on Embedded Software Technology.
7. K. Cooper, "Issues in the Empirical Evaluation of the COTS Software Engineering Methodology", Proceedings of the 2001 Workshop on Embedded Software Technology.
8. L. Chung and K. Cooper, "System Level Specification for the Digital Library System", Whitepaper, The University of Texas at Dallas, July, 2001, Version 1.2.
9. S. Tumuri, S. Raja, S., and K. Cooper, "Commercial off-the-shelf (COTS) Software Engineering Methodologies: A Comparative Study", TR UTDCS-24-01, Department of Computer Science, The University of Texas at Dallas, 2001.
10. M. Vasowala and K. Cooper, "Standards Used in Digital Library Systems", TR UTDCS 25-01, Department of Computer Science, The University of Texas at Dallas, 2001.
11. L. Chung and K. Cooper, "A COTS-Aware Requirements Engineering Technique", International Conferences on COTS-Based Software Systems, 2002 (poster).
12. P. Balasundaram and K. Cooper, "Survey of DSP Applications and Technologies", TR UTDCS-06-02, Department of Computer Science, The University of Texas at Dallas, 2002.
13. L. Chung and K. Cooper, "A COTS-Aware Requirements Engineering (CARE) Process: Defining System Level Agents, Goals and Requirements, version 2", TR UTDCS-11-02, Department of Computer Science, The University of Texas at Dallas, 2002.
14. L. Chung and K. Cooper, "A COTS-Aware Requirements Engineering (CARE) Process: Defining System Level Agents, Goals, Requirements and Architecture, version 3", TR UTDCS-20-02, Department of Computer Science, The University of Texas at Dallas, 2002.
15. L. Chung, K. Cooper, and A. Yi, "Architecting Adaptable Software Using COTS: An NFR Approach", TR UTDCS-19-03, Department of Computer Science, The University of Texas at Dallas, 2003.
16. K. Cooper, L. Dai, and J. Dong, "Process Definition for the Formal Design Analysis Framework", TR UTDCS-20-03, Department of Computer Science, The University of Texas at Dallas, 2003.
17. J. Cangussu and K. Cooper, "A new approach for the design and control of adaptive systems," TR UTDCS-21-03, Department of Computer Science, The University of Texas at Dallas, 2003.
18. J. Karagadda and K. Cooper, "Formal Specification of the CARE Product Model: An XML Solution", TR UTDCS-30-03, Department of Computer Science, The University of Texas at Dallas, 2003.
19. Jia Zhou and Kendra Cooper, "A Component Based Customization Technique for QoS Properties", Technical Report, UTDCS-50-03, The University of Texas at Dallas, Department of Computer Science, 2003.
20. K. Cooper and A. Krishnamurthy, Quantitative and Qualitative Multi Criteria Decision Making Techniques- A COTS Perspective, UTDCS-02-04, The University of Texas at Dallas, Department of Computer Science, 2004.
21. L. Dai and K. Cooper, Modeling and Analysis of Performance Aspects, UTDCS-03-04, The University of Texas at Dallas, Department of Computer Science, 2004.
22. J. Cangussu, K. Cooper, E. Wong, and X. Ma, An Adaptive Persistence Service Using the SMART Framework, UTDCS-05-04, The University of Texas at Dallas, Department of Computer Science, 2004.

23. L. Chung, K. Cooper, and S. Courtney, RUP Vision Document for the Home Appliance Control System: Defining Stakeholders, Goals and COTS Components, UTDCS-17-04, The University of Texas at Dallas, Department of Computer Science, 2004.
24. K. Cooper and L. Dai, Formal Modeling and Analysis of Performance Aspects in Software Architectures, UTDCS-31-04, The University of Texas at Dallas, Department of Computer Science, 2004.
25. L. Chung and K. Cooper, Extending OMG Standards to Support Modeling Agents, Goals and Components, UTDCS-41-04, The University of Texas at Dallas, Department of Computer Science, 2004.
26. K. Cooper, C. Ramapur, and L. Chung, Component Aware Techniques (CAT) A COTS-Aware Requirements Engineering and Software Architecting Approach (CARE/SA): Defining System Level Agents, Goals, Requirements, and Architecture (version 4), UTDCS-24-05, The University of Texas at Dallas, Department of Computer Science, 2005.
27. K. Cooper and M. McFadden, Requirements and Software Architecture for the CAT Assistant Tool: Supporting The COTS-Aware Requirements Engineering and Software Architecting (CARE/SA) Approach (version 1.0), UTDCS-25-05, The University of Texas at Dallas, Department of Computer Science, 2005.
28. S. Abraham, R. Pramod, R., and K. Cooper, Enhanced RUP Vision Document for the Quality Assurance Review Assistant Tool: Defining Stakeholders and Goals, Technical Report UTDCS-16-06, 2006, The University of Texas at Dallas, Department of Computer Science, 2006.
29. M. McFadden, S. Pulikkal, and K. Cooper, Requirements and Software Architecture for the CAT Assistant Tool: Supporting The COTS-Aware Requirements Engineering and Software Architecting (CARE/SA) Approach (version 2.0), UTDCS-26-06, The University of Texas at Dallas, Department of Computer Science, 2006.
30. J. Zhou, K. Cooper, L.-L. Yen, Route finder on PDA - An application of the component parameterization technique, Technical Report UTDCS-70-06, The University of Texas at Dallas, Department of Computer Science, Dec. 2006.
31. J. Zhou, K. Cooper, L.-L. Yen, Rule generalization in the component parameterization technique - A formal approach, Technical Report UTDCS-69-06, The University of Texas at Dallas, Department of Computer Science, Dec. 2006.

Presentations:

(entries duplicate those in section for refereed workshops, symposia, and conferences)

1. K. Cooper and M. Ito, "Advantages of Stimulus Response Requirement Specification Techniques for System Testing", Proceedings of the International Council on Systems Engineering Symposium, Vancouver, Canada, pp. 141-147, July 26-30, 1998.
2. L. Chung and K. Cooper, "Towards a Model Based COTS-Aware Requirements Engineering Process", Proceedings of the Model Based Requirements Engineering Workshop, San Diego, California, pp. 53-60, November 30, 2001.
3. L. Chung and K. Cooper, "A COTS-Aware Requirements Engineering Process: a Goal-and Agent Oriented Approach", Proceedings of the International Council on Systems Engineering Symposium, Las Vegas, Nevada, CDROM index 3.5.4, pp. 1-8, July 28 - August 1, 2002.
4. K. Cooper and M. Ito, "Formalizing a Structured Natural Language Requirements Specification Notation", Proceedings of the International Council on Systems Engineering Symposium, Las Vegas, Nevada, CDROM index 1.6.2, pp. 1-8, July 28 - August 1, 2002.

5. L. Chung and K. Cooper, "Defining an Architecture with a COTS-Aware Software Engineering Process", Proceedings of the International Council on Systems Engineering Symposium, Arlington, VA, pp. 1219-1228, June 29 - July 3, 2003.
6. L. Chung and K. Cooper, "Matching, Ranking, and Selecting COTS Components: A COTS-Aware Requirements Engineering Approach", MPEC Workshop, co-located with the International Conference of Software Engineering, 2004, Edinburgh, UK.
7. K. Cooper, L. Dai, and Y. Deng, "Performance Modeling and Analysis of Software Architectures: An Aspect-Oriented UML Based Approach", International Workshop on Systems and Software Architecting (IWSSA), June 22, 2004, Las Vegas, Nevada.
8. K. Cooper, J. Cangussu, R. Lin, G. Sankaranarayanan, R. Soundararajan, and E. Wong, "An Empirical Study on the Specification of Components Using Fuzzy Logic", 8th International SIGSOFT Symposium on Component-based Software Engineering, Software Components at Work, St. Louis, USA, May 14-15, 2005, pp. 155-170.
9. K. Cooper, G. Rudelis, K. Feng, A. Kansara, J. Karagadda "Requirements Engineering in Agile Development", International Conference on Component-Based Systems, Feb. 13-17, 2006, Orlando, U.S.A.
10. K. Tian and K. Cooper, "Agile and Software Product Line Methods: Are They So Different?", 1st International Workshop on Agile Product Line Engineering, August 21, 2006, Baltimore, Maryland, USA.
11. K. Cooper, "Can Agility be Introduced into Requirements Engineering for COTS Component Based Development?", 1st International Workshop on Software Product Management, September 12th, 2006, Minneapolis/St. Paul, USA.

Teaching and Supervision

Doctoral Advisement/Direction:

Dissertation Adviser

Graduated

Lirong Dai, "Formal Design Analysis Framework- an Aspect-oriented Approach", Ph.D. dissertation completed, graduated December 2005.

In progress

Jia Zhou, "Code Parameterization for Satisfaction of QoS Requirements in Embedded Software", Ph.D. dissertation in progress, graduating May 2007.

New Ph.D students in Fall 2006

Kunwu Feng, Yan Tang, Kun Tian

Dissertation Committee Member

Graduated

Dongfeng Wang, "Formal Specification, Automatic Decomposition, and Composition Based on Independent Developable End-user Assessable Logical (IDEAL) Components", Dr. Farokh Bastani, August 2005.

Sheng Yang, "Reasoning and Visualizing Composition of Design Patterns", Dr. Jing Dong, December 2006.

Renee Steiner, "Engineering Open Environments for Multi-Agent Simulation Systems", Dr. Rym Mili, December 2006.

In progress

Wei Hao, "Web Proxy Caching for Service-Centric Agents", Dr. I-Ling Yen.

Ma Hui, "Composition Analysis for Component-based Embedded Software Development", Dr. I-Ling Yen.

Sam Supakkul, "Model driven development with the emphasis on capturing the relevant FR and NFR related knowledge for different phases of the life cycle", Dr. Lawrence Chung.

Masters Advisement/Direction:

Thesis Adviser

Graduated

Pradeep Balasundaram, "Parameterization of C Code to Support Non-functional Behavior Trade-offs", Spring 2004.

Tropa Chowdhury, "Case study: Evaluating the Effectiveness of using the COTS-Aware Requirements Engineering and Software Architecting Approach on a distributed, concurrent groupware application", Fall 2004.

Jyothi Katragadda, "Formalization of the CARE Product Model: an Object-oriented XML solution", Fall 2004.

In progress

Tonda Phillips, recipient of the prestigious GetDoc fellowship, started January 2007.

Jonathan Resendiz, "Effectively Managing Change in Component Based Requirements Engineering", recipient of the prestigious GetDoc fellowship.

Thesis Committee Member

Graduated

Faisal Shafique, "Supporting CARE Methodology with Knowledge Based Tool for Telepresence System", Dr. Lawrence Chung, 2002.

Anna Yi, "Collaborative Executable Behavioral Requirements using Condition-Action Petri-Net", Dr. Lawrence Chung, 2002.

Helle Gowan, "Software Agent Task Scheduling", Dr. Rym Mili, 2003.

Pallavi Sreeram, "Automated glue code synthesis using package specific languages", Dr. Farokh Bastani, 2003.

Rucha Khisti, "A Component Framework for Resource Management Systems", Dr. Jing Dong, 2004.

Gary Leask, "Agent Environments", Dr. Rym Mili, 2005.

Sourabh Anani, "The Collaborative NFR Assistant: A Collaborative CASE Tool for the Non-functional Requirements Framework", Dr. Lawrence Chung, 2006.

Dushyant S. Lad, "Reverse Engineering of Design Patterns", Dr. Jing Dong, 2006

Ingrid Lee, "Understanding and Improving an Animation: Requirement Approach", Dr. Lawrence Chung, 2006.

Bachelor Advisement/Direction (thesis, honors):

Khandker Hasan, "Application of aspect-oriented approaches in embedded software systems", cs 4399, 2004.

John Solis, "A Steganography Technique for x86 Executables", honors project, 2004.

Vijay Garimella, "C#/NET Development of a Component Based Software Engineering CASE Tool", cs 4399, 2005

Niraj Majumdar, "C#/NET Development of a Component Based Software Engineering CASE Tool", cs 4399, 2005.

Timothy Burchfield, "Internet Connection Monitor: Design and Implementation", honors project, 2006.

Independent Study Advisement/Direction:

Supervised over 75 independent study students at both graduate and undergraduate levels.

Classroom Teaching:

Course Number, Title	Semester, Time Offered	Enrollment	Mean Values for Questions #1,2,3
CS 6389 Formal Methods and Programming Methodologies	Spring 2002 MW 5:30-6:45 p.m.	4	#1: 3.5 #2: 3.5 #3: 3.8
SE 2370 Mathematical Foundations for Software Engineers	Fall 2002 TR 5:30-6:45 p.m.	11	#1: 4.6 #2: 4.6 #3: 4.9
SE 6354 Advanced Software Engineering	Spring 2003 MW 5:30-6:45 p.m.	55	#1: 4.1 #2: 4.1 #3: 4.7
SE 2370 Mathematical Foundations for Software Engineers	Fall 2003 TR 3:30-4:45 p.m.	17	#1: 4.333 #2: 4.20 #3: 4.375
SE 6354 Advanced Software Engineering	Fall 2003 TR 5:30-6:45 p.m.	35	#1: 4.5 #2: 4.0 #3: 4.7
SE 2370 Mathematical Foundations for Software Engineers	Spring 2004 MW 4:00-5:15 p.m.	38	#1: 3.8 #2: 3.8 #3: 4.50
SE 2370 Mathematical Foundations for Software Engineers	Fall 2004 TR 2:00-3:15 p.m.	28	#1: 4.6 #2: 4.2 #3: 4.6
CS/SE 3354 Software Engineering	Spring 2005 MW 9:30-10:45 a.m.	28	#1: 3.62 #2: 3.62 #3: 4.02
CS 6354 Advanced Software Engineering (Research Track)	Spring 2005 MW 12:30-1:45 p.m.	18	#1: 4.14 #2: 3.71 #3: 3.92
SE 3306 Mathematical Foundations for Software Engineers	Fall 2005 MW 4:00-5:15 p.m.	31	#1: 4.27 #2: 4.0 #3: 4.21
CS 4380 Senior Design Project	Fall 2005 NSM	9	Senior design project courses are not evaluated
CS 6354 Advanced Software Engineering	Spring 2006 TR 4:00-5:15 p.m.	26	#1: 4.5 #2: 4.3 #3: 4.8
CS 3375 Principles of Unix	Fall 2006 TR 2:00 - 3:15 p.m.	39	#1: 4.0 #2: 3.8 #3: 4.3
SE 4485 Software Engineering Project	Spring 2007 F 12:30 - 3:15 p.m.	18	In progress
CS 5375 Principles of Unix	Spring 2007 MW 2:30 - 3:45 p.m.	24	In progress

Curricular Development:

Developed the new course SE 3306 in Fall 2001

This course contains material that is typically presented to graduate level students in North America, such as model theory, axiomatic set theory, and the formal methods Petri Nets and Statecharts. The challenge in developing this course is to organize and present the material such that it can be absorbed by junior level students.

Involved in the revision of the CE/CS/SE 6354 Advanced Software Engineering description and syllabus.

Service

Service Contributions Within UTD at the University Level:

University Library Committee, member, representative for the Erik Jonsson School 2002-2004

Service Contributions Within UTD at the Department Level:

ABET Accreditation Working Group

Responsible for CS/SE 3354 (software engineering) and SE 4351 (requirements engineering) form development and maintenance

Computer Science Department

Library Committee, chair 2002, 2003, 2004

Equipment Committee, member 2004, 2005

Ph.D. Qualifying Examination Committees

CS 6354 (2002-2006)

CS 6361 (2002-2006)

ComputingFest Judge and Student Nominator, 2005, 2006

This is a computer science department event, in which students present their software projects to a panel of judges and the audience of students, faculty, and staff. The students compete for prizes. IBM Rational Corporation's Academic Initiative Program Representative (2002-2006)

Obtained IBM Rational's state of the art software development tools (e.g., Rational Rose, Requisite Pro, etc.) at no charge for the Computer Science Department's teaching labs

Initiating and assisting in the development of the new CS-Technical Support Webpage

This new website will be a valuable resource for students, staff, and faculty providing up to date information on teaching lab resources, hours, problem reports, etc.

Representing UTD/SE at the Open Standards Shared Software Infrastructure (SSI) Hub Workshop, 2006
The SSI Hub project is building an infrastructure, shared among universities, where universities can more easily introduce the latest leading software knowledge into both undergraduate and graduate classrooms without building costly infrastructure at each university. UTD is among the 19 Universities participating in the Hub. The SSI Hub website is:

<http://ssi7.cs.tamu.edu/ssi/ssihub.jsp?field=ssihub>

Society of Women Engineers

Faculty mentor for the UTD student chapter.

Service Contributions External to UTD:

Editorial Boards

Serving on the Editorial Board of the *International Journal of Computer and Information Science* (IJCIS)

Guest Editor

International Journal on Software Engineering and Knowledge Engineering, guest editors Dr. Eric Wong and Dr. Kendra Cooper, special issue on Aspect-oriented Software Development
Journal of Visual Languages and Computing, guest editors Dr. Ingolf Krueger, Dr. Holger Giese, and Dr. Kendra Cooper, special issue on Visual Modeling of Software Intensive Systems
Journal of Systems and Software, guest editors Dr. Xavier Franch and Dr. Kendra Cooper, special issue on Agile Product-line Engineering

Conferences and Workshops (program committees, co-organizer, chair)

2001-2004
Program Committee Member for the Model Based Requirements Engineering Workshop 2001 (MBRE 2001)
Program Committee Member for the Session on Adaptable Software Architectures 2002 (ASA 2002)
Program Committee Member for the Workshop on Adaptable Software Architectures 2003 (WASA 2003)
Program Committee Member for the International Workshop on Systems and Software Architecture, 2004 (IWSSA 2004)
Organizing Committee Member for 27th IEEE Annual International Conference on Computer Software and Applications Conference (COMPSAC 2003)
Program Committee Member for 28th IEEE Annual International Conference on Computer Software and Applications Conference (COMPSAC 2004)
Program Committee Member for the International Workshop on Models and Processes for the Evaluation of COTS Components (MPEC 2004)
Program Committee Member for the 2nd International Workshop on Requirements Engineering for COTS Components (RECOTS 2004)
Program Committee Member for the IEEE Sixth International Symposium on Multimedia Software Engineering (IEEE-MSE2004)

2005

Co-organizer, Workshop on the Visual Modeling of Software Intensive Systems (VMSIS 2005), co-located with IEEE Symposium on Visual Languages and Human-Centric Computing
Local chair, IEEE Symposium on Visual Languages and Human-Centric Computing (IEEE-HCC 2005)
Panel Organizer, 9th International Workshop on Software and Compilers for Embedded Systems (SCOPES 2005)
Program Committee Member, 9th International Workshop on Software and Compilers for Embedded Systems (SCOPES 2005)
Program Committee Member for 28th IEEE Annual International Conference on Computer Software and Applications Conference (COMPSAC 2005)
Program Committee Member for the International Workshop on Models and Processes for the Evaluation of COTS Components (MPEC 2005)
Program Committee Member for the 6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD 2005)
Program Committee Member for the International Workshop on Systems and Software Architecture, 2005 (IWSSA 2005)
Program Committee Member for the 18th International Conference on Computer Applications in Industry and Engineering (CAINE 2005)

Program Committee Member for the Educators Symposium, co-located with the ACM / IEEE 8th International Conference on Model Driven Engineering Languages and Systems, (MODELS 2005)

2006

Co-organizer for the Workshop on Agile Product-line Development, 2006, co-located with the SEI Software Product-line Conference (SPLC 2006)
Poster chair, 5th IEEE International Conference on COTS-based Software Systems (ICCBSS, 2006).
Program Committee member of the 1st International Workshop on Software Product Management, 2006, co-located with the Requirements Engineering Conference (RE 2006)
Programme Committee member of the 18th International Conference on Software Engineering and Knowledge Engineering (SEKE 2006)
Program Committee member for the 7th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD 2006)
Program Committee Member for the International Workshop on Systems and Software Architecture (IWSSA 2006)
Program Committee Member for the International Conference on Software Engineering Advances (ICSEA 2006)
Program Committee Member for the International Conference on Software Engineering Research, Management & Applications Advances (SERA 2006)

2007

Program Committee Member for the Visual Interactions in Software Technology mini-track, Hawaii International Conference on System Sciences (HICSS 2007)
Program Committee Member for the International Conference on Software Engineering Theory and Practice (SETP 2007)
Program Committee Member for the Software Specification and Modeling session at 4th International Conference on Information Technology: New Generations (ITNG 2007)
Program Committee member for the 8th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD 2007)
Programme Committee member of the International Conference on Software and Data Technologies (ICSOFT 2007)
Programme Committee member of the International Conference on Multimedia and Ubiquitous Engineering (MUJE 2007)
Program Committee Member for the International Workshop on Systems and Software Architecture (IWSSA 2007)
Program Committee Member for the International Conference on Software Engineering Research, Management & Applications Advances (SERA 2007)
Program Committee member for the High Performance Information Retrieval and Visualization: Algorithms and Applications session, co-located with High Performance Computing & Simulation (HPCSim07)
Program Committee Member for the 6th IEEE International Conference on COTS-based Software Systems (ICCBSS 2007)
Program Committee member of the 19th International Conference on Software Engineering and Knowledge Engineering (SEKE 2007)

Education

Computing Curricula Software Engineering (CCSE) Joint Task Force on Computing Curricula, Chair for the Committee on Introductory Modules and Courses

This IEEE-CS and ACM project has been established to develop guidance for undergraduate programs in software engineering. The CCSE efforts have produced a curriculum volume containing both the software engineering education knowledge that every graduate from an undergraduate software engineering program should know and a set of curriculum models outlining how this knowledge should be delivered. The first full public draft of the CCSE Volume has been produced and it is posted on the CCSE web site <http://sites.computer.org/ccse/>

Journal Reviews

Annals of Software Engineering Journal
Information and Software Technology Journal
International Journal of Computers and Applications
International Journal of Computer Science
Journal of Jheiliang University Science
Journal of Software Engineering and Knowledge Engineering
Knowledge and Data Engineering Journal
Knowledge and Information Systems Journal
Software and System Modeling Journal
Requirements Engineering Journal

Grants

Title: Effective COTS-Aware Requirements Engineering
Agency: The University of Texas at Dallas, Texas Enterprise Award
PI: Dr. Lawrence Chung, Co-PI: Dr. Kendra Cooper
Amount: \$60,000
Start date: 06/01/05
Duration: 15 months

Title: Component-Based QoS-Driven Synthesis of High Assurance Embedded Software
Agency: NASA STTR (subcontract to IA Tech, Inc.)
PI: Dr. J-Ling Yen, Co-PIs: Dr. Farokh Bastani, Dr. Kendra Cooper
Amount: \$100,000 (\$28,000 for UTID)
Start date: 05/01/05
Duration: 15 months

Title: Usability Study on a Home Appliance Control System
Agency: Visonic, Inc.
PI: Dr. Kendra Cooper, Co-PI: Dr. Lawrence Chung
Amount: \$5,000 gift (\$2500 cash, \$2500 equipment)
Start date: 03/01/06

Title: Agile Product-line Development
Agency: Trintech, Inc.
PI: Dr. Kendra Cooper
Amount: \$6,000 gift
Start date: 06/01/06

Ovidiu Daescu
Erik Jonsson School of Engineering and Computer Science
Department of Computer Science
January 1, 2007

Education:

- PhD, Computer Science and Engineering, University of Notre Dame, Notre Dame, IN, May 2000
 - Dissertation: On Geometric Optimization Problems
 - Advisor: Danyu Z. Chen
- M.S. Computer Science and Engineering, University of Notre Dame, Notre Dame, IN, May 1997
 - Thesis: Maintaining Visibility of a Polygon with a Moving Point of View
 - Advisor: Danyu Z. Chen
- Engineer Diploma, Computer Science and Automation, Technical Military Academy, Bucharest, Romania, June 1991.

Employment History:

- 9/2006-Present Associate Professor, University of Texas at Dallas
- 9/2000-8/2006 Assistant Professor, University of Texas at Dallas
- 5/2000-7/2000 Postdoctoral Research Associate, University of Notre Dame
- 8/1995-5/2000 Teaching / Research Assistant, University of Notre Dame
- 7/1992-6/1995 Lecturer, Technical Military Academy, Bucharest, Romania
- 8/1991-7/1992 Programming Analyst, Technical Military Academy Computing Center, Bucharest, Romania

Professional Memberships, Awards and Honors:

- Member ACM, ACM SIGACT.
- Graduate Student Fellow of the Center for Applied Mathematics, University of Notre Dame, 8/1998-5/1999.
- Fellowship from the Center for Applied Mathematics, University of Notre Dame, 8/1998-5/1999.

Statement of Research:

Many problems that arise in the physical world deal with minimizing (or maximizing) an *objective function* in a geometric (e.g., planar, spatial) setting that defines a set of constraints. Computational geometry is the field of computer science that studies problems arising in a geometric setting. It has strong connections to other computer science fields, such as graph theory and combinatorial optimization, and uses a wide range of methods derived from mathematical disciplines, including applied mathematics, algebraic geometry and topology. Many problems in those fields are often related to fundamental computational geometry topics such as convexity, visibility, shortest paths, Voronoi diagrams, convex hulls, etc. Due to its applications to various science and engineering related problems, computational geometry has received a great deal of attention over time.

My main research interests are in the areas of algorithm design and computational geometry. I am particularly interested in developing computationally efficient algorithms for geometric optimization problems. Some of the emerging computational fields, such as computational medicine and computational biology are dealing with problems that can make use of geometric optimization techniques. Those problems can be formulated as geometric optimization problems and it is expected that good (fast, simple, efficient) algorithms can be designed by exploiting their geometric properties. My research aims to bring computational geometry and geometric optimization techniques in the forefront of other computational fields, such as those mentioned above.

Optimal Path Problems

One major focus of my research is on finding optimal paths in various settings (graphs, planar scenes, line arrangements, etc.) subject to geometric constraints or under multiple optimization criteria. The problem of finding an optimal path is fundamental to computer science and has received a great deal of attention over time. The measure of "optimality" can be defined in different ways and usually affects the complexity of the problem. One of the most intriguing problems, arising frequently in applications, is that of finding paths that are optimal with respect to multiple criteria. For example, in robot guided surgery, one may want to compute a path that has only few turns/links (at most k , for some integer value k), and a small length (the smallest among all possible paths with no more than k turns). While there are quite a few algorithms known for efficiently computing Euclidean shortest paths and minimum link paths, there are only few results on multi-criteria path problems. Among those problems, one of great interest is to compute a minimum length path in a polygonal domain, restricted to have at most k links.

In [17] we consider geometric paths under several optimality criteria, including the length, number of edges (called *links*), monotonicity with respect to a certain direction, and some combinations of length and links. The methods used are centered around the notion of *gateways*, easily identified points that control the paths we seek. Some of our results in [17] have remained the best known to date.

In [12] we consider a class of optimal path problems for which the *space complexity* of the algorithms for reporting the *lengths* of single-source optimal paths is asymptotically smaller than the space complexity of the "standard" tree-growing algorithms for finding actual optimal paths. We present a general and efficient algorithmic paradigm for finding an actual optimal path for such problems without having to grow a single-source optimal path tree. Our paradigm is based on the "marriage-before-conquer" strategy, the prune-and-search technique, a new data structure called *clipped trees*, and an algorithmic approach that has been very recently termed as "multi-pass geometric algorithms". Our algorithmic solutions improve the space bounds (in certain cases, the time bound as well) of the previously best known algorithms, and settle some open problems.

In [14] we present efficient parallel algorithms for solving several fundamental problems on planar *st*-graphs, including all-pairs shortest paths, single-source shortest paths, and depth-first search.

In [7] the main effort is on computing single source shortest paths in some directed geometric graphs, subject to additional (turn angle, path dependent) constraints. In [7], by reducing the problems to some weighted interval/disk exclusion searching problems and solving those problems efficiently, we match the time complexity of the best known solutions [13,15] for the unconstrained case.

A significant part of my research is concerned with optimal path problems in weighted regions, with added restrictions on the number of turns. In the weighted region problem, the input is a (planar, spatial) subdivision with each face/region of the subdivision having an associated nonnegative weight. With the weighted region metric, the portion of a path that is contained within some face of the subdivision has its length defined as the product of the Euclidean length and the weight of the face. This research has been recently funded by NSF (09/2006-08/2009, about \$240,000 awarded).

The optimal k-link problem in weighted regions asks to find the shortest path between two points, with the added constraint that the path has at most k-1 turns. The problem has a different structure than the well known shortest path problem and its complexity is not known yet. A key difficulty is that, in general, the optimal path will not lie on any simple discrete graph.

Even the problem of computing an optimal 1-link path between two regions in a weighted subdivision has proved to be difficult. Important steps towards solving the optimal 1-link problem in two and three dimensions (2-D and 3-D) have been first made in [16], where we prove that the problem can be reduced to a number of $O(n^3)$ subproblems, each of which asks to minimize a function f over some convex 2-D (resp., 4-D) domain D , where f is given as a sum of $O(n)$ fractional terms. With L_1 and L_∞ metrics f reduces to a special case of the *sum-of-linear-fractionals* problem [8]. Our work on SOLF problems is of special interests, as it also makes contributions to the field of applied mathematics.

In [41] we give efficient parallel solutions for constructing the subproblems for the 2-D 1-link problem. In [39,53] we show that an optimal 1-link goes through a vertex of the weighted subdivision and propose a prune-and-search algorithm to find it. In [53], we give the first upper bound on this and related problems.

The major breakthrough for the k-link problem came only very recently, in [23], where we show how to compute a $(1+\epsilon)$ -factor approximation of the k-link shortest path. No results with guaranteed error bounds were previously known for this problem. The results in [23] have been significantly strengthened in [20]. In the future, I plan to build on the results for the shortest path problem to research algorithms for other fundamental problems that have not been investigated in the context of weighted regions.

The algorithms for the 1-link and k-link problems have been implemented, a task that required a significant effort. The software package that resulted is available to the research community.

Shape Simplification

Data used in real world applications, such as medical imaging and geographic information systems, needs to be stored, manipulated and transmitted at various sites. In many cases, some input data is redundant, unnecessary, or it can be approximated without affecting the quality of the data or its geometric features. A significant part of my research is concerned with shape simplification, particularly the simplification of polygonal paths/chains in two and higher dimensions. A main emphasis of my work was on designing appropriate data structures and on keeping the space requirements small. In [13], we consider two well known optimization versions of the polygonal path simplification problem, called *min-#* and *min- ϵ* , and propose approaches that reduce the memory requirements from $O(n^4)$ to $O(n)$ while matching the time bounds of the best known algorithms in the plane. To obtain linear memory for the *min- ϵ* problem, we introduce a novel method for performing binary search on a quadratic size set using only linear space. The method falls in the realm of recently termed multi-pass geometric algorithms: the quadratic size set is computed a constant number of times, in a number of stages, each stage requiring only linear storage. However, it is somehow frustrating that no sub-quadratic algorithms could be designed for the general problem under the Euclidean distance metric and no nontrivial lower bounds could be proved. Very recently, we have proved that if some mild condition is satisfied by the input chain then sub-quadratic results are possible for the planar case with the Euclidean metric [9]. The results in [6,15] apply to the three and higher dimensional versions of the problem and are among the best known to date with respect to the theoretical bounds. In [11] we give bounds on the complexity of some algorithms for approximating polygonal paths in two and three-dimensions with a special measure of error, called *infinite beam*. Our results answer some open problems left in previous work. The results in [9,11] are output sensitive, have been implemented, and tend to perform well in practice.

For the future, along this direction, I plan to extend my work to subdivision and three-dimensional terrain/shapes simplification, and to related problems such as shape matching and morphing.

Proximity, Visibility and Approximation Algorithms

In [2], we address a number of fundamental proximity problems for points in the plane. Specifically, given a set S of n points in the plane and another point q , we present optimal algorithms for a number of problems, including finding the closest and farthest line segments from q among those spanned by the points in S , and finding the k -th closest line and the k closest lines from q among those spanned by S .

In [26] we develop efficient algorithms for a version of the well known terrain guarding problem, in two and three dimensions. Specifically, we consider the problem of finding two watchtowers of smallest common height such that each point on the terrain is seen from the top of at least one of the towers. Our results are either the first known (in three dimensions), or they are significant improvements over the previously best known algorithms. In [18] we have developed an optimal algorithm for maintaining the visibility of a polygon with a moving viewpoint.

In [4] we prove a key conjecture related to the polygon cutting problem, a problem introduced to computational geometry about two decades ago. The proof allows us to approximate optimal cutting sequences within constant factor from optimal. We also present linear or almost linear time algorithms for cutting out polygons with lines and rays [4,19]. The ray cutting algorithms are the first known and answer a two decades old question.

In [8], we consider the monotone-cover and star-cover problems for a simple polygon P : compute a monotone or star shaped polygon P' of minimum area that contains P . The solutions for these problems are hinged on a traversal of a two-dimensional arrangement of lines that defines the domains and objective functions of various instances of the sum-of-linear-fractionals problem.

Data Structures

Another important part of my research is concerned with the development of efficient data structures in support of various optimization algorithms (optimal path planning, path simplification, etc.).

The paradigm we have developed in [12] for finding an actual optimal path without having to grow a single-source optimal path tree is based on a novel data structure called *clipped trees*. Clipped trees can be used to compute an actual path for a number of optimal path problems and dynamic programming problems in computational geometry, graph theory, and combinatorial optimization. The corresponding algorithmic solutions improve the space bounds (in certain cases, the time bounds as well) of the previously best known algorithms.

In [3] we develop data structures for a number of extremal point query problems in the plane. Specifically, the data structures apply to problems in which a sequence of points in the plane is given in advance and can be preprocessed to answer various queries efficiently. The most important result is a near linear size data structure, that can be constructed in near linear time, and can be used to find the farthest point from a query line segment in poly-logarithmic time. This data structure has general applications in computational geometry and beyond. For example, we have shown how to use it to obtain an output-sensitive, query-based algorithm for the polygonal chain simplification problem mentioned above.

In [6] we develop data structures for a number of fundamental proximity problems in computational geometry in three and higher dimensions. These data structures have applications to outlier identification in shape fitting problems, one of my research efforts currently funded by NSF.

Specifically, we have developed data structures for a number of extremal point query problems, including the computation of the farthest point from a query line and line segment, and the computation of the farthest point from each of the lines and line segments spanned by a set of points. In three-dimensions, we have developed the first known data structure that can efficiently report the farthest point from a query line segment with near linear preprocessing time and space. Besides outlier identification in shape fitting problems, our data structures also have applications in bioinformatics, graph drawings and other related fields. For example, in [28], among other findings, we show how the data structures for answering line

and line segment queries in [6] can be applied to obtain novel results for some bioinformatics problems, such as the protein backbone simplification problem.

Statement of Teaching:

Over the past few years, I have developed and taught curriculum for a few courses in the Computer Science Department, including undergraduate courses CS3345 - Algorithm analysis and data structures, and CS4349 - Advanced data structures and algorithms, and graduate courses CS6363 - Design and analysis of computer algorithms, CS6V01 - Geometric optimization, and CS7301 - Recent advances in computing: applied algorithms, CS7301 - Computational methods in structural biology. For these courses, I have developed curriculum, including lectures, homework assignments, examinations, and projects.

In the graduate courses, when permitted, I have used examples with geometric structure to illustrate key concepts (e.g., in CS6363, convex hull for divide-and-conquer, optimal polygon triangulation for dynamic programming, in CS7301, chain simplification, motion planning, etc.). In CS6363 I have also introduced a novel technique from performing "memory constraint" binary search, a generalization of the standard binary search method. In the undergraduate courses I encouraged students to think creatively, aiming to build interest in the subject matter and to provide valuable experience for the students' future careers.

In Spring 2002, I developed and taught a new graduate course CS6V01 - Geometric optimization. The course provided students with the basic background required to do research on geometric optimization problems and to apply geometric optimization techniques in practical applications. In this course the students had taken on individual projects and disseminated their work through class presentations. Two conclusions came out: (1) Students needed to see large scale applicability of computational geometry concepts and techniques and (2) Strong evidence of applications in telecommunications and networks field and other trendy computer and computing related fields was needed. Two main directions emerged to best combine my research interests and students learning goals. The first one was mobile ad-hoc networks (MANETs), where the location of computing nodes is important in designing efficient algorithms. The second one was bio-medical computing.

Following these conclusions, I have made efforts to develop a new research oriented course that would relate computational geometry concepts with applications. The course, CS7301 - Recent advances in computing: applied algorithms, was taught during Fall 2002 semester. The main goal of the course was to expose students to up to date algorithms for various problems that appear in practical applications. The course focused on current issues in research and provided greater depth than the geometric optimization course. It was to my satisfaction that some of the students in CS6V01 that were not under my advisement have decided to further register for this course.

Some of the research problematic related to my research work has been integrated in this course. For example, the technique of performing binary search with memory constraints that I have developed for 2-dimensional shape simplification has been generalized and incorporated in this class. Other topics such as optimal paths, routing in MANETs with quality of service, sensor networks location problems and selected problems in bio-computing, illustrating various algorithmic and geometric techniques, were also included in this course. A number of projects have been developed for this course, to expose students to practical applications and to aid in developing their research skills.

In Fall 2006 I developed and taught a new graduate course CS7301 - Computational methods in structural biology. The main goal of the course was to expose students to computational methods and algorithms for various problems that appear in structural biology. Some of the research problematic related to my research work has been integrated in this course.

An important part of my educational plan is to develop mentoring relationships with students. Since Spring 2002, I have supervised students in the Clark Summer Research Program. The students (incoming freshman) actively participated in research activities in my research group, working closely with me on various research problems. For example, this summer, the Clark student I advised was able to answer a conjecture from the Symposium on Computational Geometry, June 2005. Another undergraduate student I advise, Jonathan Fickenscher, was able to solve a problem from the Workshop on Geometry in NMR Protein Structure Determination and NMR Structural Biology, January 2005.

Statement of Service:

In spring 2003, I was co-organizer and co-chair of the 3rd International Workshop on Computational Geometry and Applications, Montreal, Canada. The workshop attracted a significant number of participants from the computational geometry community and had two world renowned computational geometers, Prof. Chee Yap, NYU, and Prof. Godfried Toussaint, McGill University, as invited speakers. I was a National Science Foundation panel review member, May, June 2004, and November 2006.

Since 2002, I am a program committee member for the International Workshop on Computational Geometry and Applications. In 2006, I was PC member for the International Conference on Wireless and Mobile Communications (ICWMC 2006), the International Multi-Conference on Computing in the Global Information Technology (ICCGI 2006), and the International Symposium on Voronoi Diagrams (ISVD).

At the University of Texas at Dallas, I was appointed by the Provost to serve in the UTD Committee on Biotechnology, June 1, 2003 - August 31, 2005. In this committee, I had an active role in defining, preparing and starting the MS in Biotechnology degree program. I have also contributed to the initiation of the bioinformatics direction within the CS Department. At the school level I am a member of the biotechnology advising committee since 2006.

I have also served in the computer science Master Research Track committee from fall 2003 to spring 2006.

I served on the graduate admissions committee and the TA selection committee of the Computer Science Department during the academic years 2001-2002 and 2002-2003. During the academic years 2000-2001, 2001-2002 and 2002-2003 I served as a member of the PhD recruiting committee. I was one of the organizers of the PhD recruiting Colloquium, which proved to be a success in introducing and attracting new students to the PhD program. The Colloquium started in September 2000. I had an active role in the reorganization of the PhD program, starting fall 2002, and in defining requirements for the PhD Qualifying Examination. During the academic years 2001-2002 and 2002-2003 I had an active role in advising new PhD students.

I was in charge of defining the ABET requirements for CS3345 and CS4349 at various times during 2002-present. Currently I am a member of the CS curriculum committee.

Refereed Journal Publications:

1. "GARA: a geometry aided routing algorithm", O. Daescu, G. Fasui and K. Haridoss, *Wireless Communications and Mobile Computing*, Vol. 6, No. 2, pp. 259-268, 2006.
2. "Proximity problems on line segments spanned by points", O. Daescu, J. Luo and D. Mount, *Computational Geometry: Theory & Applications*, Vol. 33, No. 3, pp. 115-129, 2006.
3. "Farthest-point queries with geometric and combinatorial constraints", O. Daescu, N. Mi, C.-S. Shin and A. Wolff, *Computational Geometry: Theory & Applications*, Vol. 33, No. 3, pp. 174-185, 2006.
4. "Cutting out Polygons with Lines and Rays", O. Daescu and J. Luo, *International Journal of Computational Geometry & Applications*, Vol. 16, No. 2-3, pp. 227-248, 2006.
5. "Load-balanced agent activation for value-added network services", C. Gong, K. Sarac, O. Daescu, B. Raghavachari and R. Joti, *Computer Communications*, Vol. 29, No. 11, pp. 1905-1916, 2006.
6. "Extremal point queries with lines and line segments and related problems", O. Daescu and B. Serfling, *Computational Geometry: Theory & Applications*, Vol. 32, No. 3, pp. 173-187, 2005.
7. "Polygonal path approximation with angle constraints", D.Z. Chen, O. Daescu, J. Hersberger, P.M. Kogge, N. Mi, and J. Snoeyink, *Computational Geometry: Theory & Applications*, Vol. 32, No. 3, pp. 223-237, 2005.
8. "Efficient algorithms and implementations for optimizing the sum of linear fractional functions, with applications", D.Z. Chen, O. Daescu, Y. Dai, N. Katoh, X. Wu and J. Xu, *Journal of Combinatorial Optimization*, Vol. 9, No. 1, pp. 69-90, 2005.
9. "Polygonal path approximation: a query based approach", O. Daescu and N. Mi, *Computational Geometry: Theory & Applications*, Vol. 30, No. 1, pp. 41-58, 2005.
10. "Flexible strategies for disk scheduling in multimedia presentation servers", S. Emilda, L. Jacob, O. Daescu and B. Prabhakaran, *Multimedia Tools and Applications*, Vol. 26, No. 1, pp. 81-99, 2005.
11. "New results on path approximation", O. Daescu, *Algorithmica*, Special Issue on Shape Algorithms, Vol. 38, No. 2, pp. 131-143, 2003.
12. "Finding an optimal path without growing the tree", D.Z. Chen, O. Daescu, X. Hu and J. Xu, *Journal of Algorithms*, Vol. 49, No. 1, pp. 13-41, 2003.
13. "Space-efficient algorithms for approximating polygonal curves in two dimensional space", D.Z. Chen and O. Daescu, *International Journal of Computational Geometry & Applications*, Vol. 13, No. 2, pp. 95-111, 2003.
14. "Efficient parallel algorithms for planar st-graphs", M.J. Atallah, D.Z. Chen and O. Daescu, *Algorithmica*, Vol. 35, No. 3, pp. 194-215, 2003.
15. "Efficiently approximating polygonal paths in three and higher dimensions", G. Barequet, D.Z. Chen, O. Daescu, M.T. Goodrich and J. Snoeyink, *Algorithmica*, Vol. 33, No. 2, pp. 150-167, 2002.

16. "Determining an optimal penetration among weighted regions in two and three dimensions", D.Z. Chen, O. Daescu, X. Hu, X. Wu and J. Xu, *Journal of Combinatorial Optimization*, Special Issue on Optimization Problems in Medical Applications, Vol. 5, No. 1, pp. 59-79, 2001.
 17. "On geometric path query problems", D.Z. Chen, O. Daescu and K.S. Klenk, *International Journal of Computational Geometry & Applications*, Vol. 11, No. 6, pp. 617-645, 2001.
 18. "Maintaining visibility of a polygon with a moving point of view", D.Z. Chen and O. Daescu, *Information Processing Letters*, Vol. 65, No. 5, pp. 269-275, 1998.
- #### Refereed Conference Publications:
19. "A PTAS for cutting out polygons with lines", S. Bereg, O. Daescu and M. Jiang, *Proceedings of the 12th Annual International Computing and Combinatorics Conference*, pp. 176-185, 2006.
 20. "An Experimental Study of Weighted k-Link Shortest Path Algorithms", O. Daescu, J.S.B. Mitchell, S. Ntafos, J.D. Palmer and C. Yap, *Proceedings of the 7th International Workshop on the Algorithmic Foundations of Robotics*, 10 pages, 2006 (proceedings to appear in 2007).
 21. "Approximating Minimum-Cost Polygonal Paths of Bounded Number of Links in Weighted Subdivisions", O. Daescu, J.S.B. Mitchell, S. Ntafos, J.D. Palmer and C. Yap, *Proceedings of the 22st Annual Symposium on Computational Geometry*, pp. 483-484, 2006.
 22. "Finding optimal weighted bridges with applications", O. Daescu and J. Palmer, *Proceedings of the 44th ACM Southeast Conference*, pp. 12-17, 2006.
 23. "K-Link shortest paths in weighted subdivisions", O. Daescu, J.S.B. Mitchell, S. Ntafos, J.D. Palmer and C. Yap, *In Lecture Notes in Computer Science*, Vol. 3608, Springer Verlag, *Proceedings of the 9th Workshop on Algorithms and Data Structures*, pp. 325-337, August 2005.
 24. "Cutting out polygons", R. Chandrasekaran, O. Daescu and J. Luo, *Proceedings of the 17th Canadian Conference on Computational Geometry*, pp. 180-183, August 2005.
 25. "Proximity problems on line segments spanned by points", O. Daescu, J. Luo and D. Mount, *Proceedings of the 17th Canadian Conference on Computational Geometry*, pp. 224-228, August 2005.
 26. "Guarding a terrain by two watchtowers", P.K. Agarwal, S. Bereg, O. Daescu, H. Kaplan, S. Ntafos and B. Zhu, *Proceedings of the 21st Annual Symposium on Computational Geometry*, pp. 346-355, June 2005.
 27. "1-Link shortest paths in weighted regions", O. Daescu and J.D. Palmer, *Proceedings of the 21st Annual Symposium on Computational Geometry*, *Multimedia Review of Computational Geometry*, pp. 378-379, June 2005.

28. "Stabbing balls and simplifying proteins",
O. Daescu and J. Luo,
Series in Mathematical Biology and Medicine, Advances in Bioinformatics and its Applications,
Proc. of the International Conference on Bioinformatics and its Applications, Vol. 8, pp. 329-340,
May 2005.
29. "Cutting out polygons with lines and rays",
O. Daescu and J. Luo,
In Lecture Notes in Computer Science, Vol. 3341, Springer Verlag, Proceedings of the 15th Annual
International Symposium on Algorithms and Computation, pp. 669-681, December 2004.
30. "Load balancing for reliable multicast",
C. Gong, O. Daescu, R. Joti, B. Raghavachari and K. Sarac,
Proceedings of the 3rd IASTED International Conference on Communications, Internet and
Information Technology (CIT), pp. 86-91, November 2004.
31. "Farthest-point queries with geometric and combinatorial constraints",
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In Lecture Notes in Computer Science, Vol. 3742, Springer Verlag, Proceedings of the Japan
Conference on Discrete and Computational Geometry, pp. 62-75, 2004.
32. "GARA: a geometry aided routing algorithm",
O. Daescu, K. Haridoss and G. Fasui,
IEEE Proceedings of the Workshop on High Performance Switching and Routing, pp. 224-228, April
2004.
33. "Optimal placement of NAK-suppressing agents for reliable multicast",
O. Daescu, R. Joti, B. Raghavachari and K. Sarac,
Proceedings of the 19th ACM Symposium on Applied Computing, pp. 334-338, March 2004.
34. "Farthest-point queries with geometric and combinatorial constraints",
O. Daescu, N. Mi, C.-S. Shin and A. Wolff,
Proceedings of the 20th European Workshop on Computational Geometry, pp. 45-48, March 2004.
35. "Polygonal path approximation: a query based approach",
O. Daescu and N. Mi,
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International Symposium on Algorithms and Computation, pp. 36-46, December 2003.
36. "Task planning with transportation constraints: approximation bounds, implementations and
experiments",
O. Daescu, D. Soeder and R.N. Uma,
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37. "Flexible disk scheduling strategies for multimedia presentation servers",
S. Emilda, L. Jacob, O. Daescu, B. Prabhakaran,
Proceedings of the IEEE International Workshop on Multimedia Signal Processing, pp. 452- 455,
December 2002.
38. "Flexible disk scheduling for multimedia presentation servers",
S. Emilda, L. Jacob, O. Daescu, B. Prabhakaran,
Proceedings of the IEEE International Conference on Networks, pp. 151- 155, August 2002.
39. "Improved optimal weighted links algorithms",
O. Daescu,
In Lecture Notes in Computer Science, Vol. 2331, Springer Verlag, Proceedings of ICCS,
International Workshop on Computational Geometry and Applications, pp. 65-74, April 2002.
40. "Computing optimal trajectories for medical treatment planning and optimization",
O. Daescu and A. Bhatia,
In Lecture Notes in Computer Science, Vol. 2331, Springer Verlag, Proceedings of ICCS,
Computing in Medicine, pp. 227-233, April 2002.
41. "Parallel optimal weighted links",
O. Daescu,
In Lecture Notes in Computer Science, Vol. 2073, Springer Verlag,
Proceedings of ICCS, International Workshop on Computational Geometry and Applications, pp.
649-657, May 2001.
42. "From experiments to theory: optimal weighted links",
O. Daescu,
Proceedings of the 17th European Workshop on Computational Geometry, pp. 158-161, March
2001.
43. "Polygonal path approximation with angle constraints",
D.Z. Chen, O. Daescu, J. Hershlberger, P.M. Kogge and J. Snoeyink,
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2001.
44. "Optimizing the sum of linear fractional functions and applications",
D.Z. Chen, O. Daescu, Y. Dai, N. Katoh, X. Wu and J. Xu,
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January 2000.
45. "Determining an optimal penetration among weighted regions in two and three dimensions",
D.Z. Chen, O. Daescu, X. Hu, X. Wu and J. Xu,
Proceedings of the 15th ACM Symposium on Computational Geometry, pp. 322-331, June 1999.
46. "Finding an optimal path without growing the tree",
D.Z. Chen, O. Daescu, X. Hu and J. Xu,
In Lecture Notes in Computer Science, Vol. 1461, Springer Verlag, Proceedings of the 6th Annual
European Symposium on Algorithms, pp. 356-368, August 1998.
47. "Space-efficient algorithms for approximating polygonal curves in two dimensional space",
D.Z. Chen and O. Daescu,
In Lecture Notes in Computer Science, Vol. 1449, Springer Verlag, Proceedings of the 4th Annual
International Computing and Combinatorics Conference, pp. 55-64, August 1998.
48. "Parallel content-based image analysis on PIM processors",
O. Daescu, P.M. Kogge and D.Z. Chen,
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(CBAIVL'98), pp. 73-77, June 1998.
49. "Efficiently approximating polygonal paths in three and higher dimensions",
G. Barequet, D.Z. Chen, O. Daescu, M.T. Goodrich and J. Snoeyink,
In Proceedings of the 14th ACM Symposium on Computational Geometry, pp. 317-327, June 1998.
50. "Efficient parallel algorithms for planar *st*-graphs",
M.J. Atallah, D.Z. Chen and O. Daescu,
In Lecture Notes in Computer Science, Vol. 1350, Springer Verlag, Proceedings of the 8th Annual
International Symposium on Algorithms and Computation, pp. 223-232, December 1997.
51. "On geometric path query problems",
D.Z. Chen, O. Daescu and K.S. Klein,
In Lecture Notes in Computer Science, Vol. 1272, Springer Verlag, Proceedings of the Fifth
Workshop on Algorithms and Data Structures, pp. 248-257, August 1997.
52. "Maintaining visibility of a polygon with a moving point of view",
D.Z. Chen and O. Daescu,
Proceedings of the 8th Canadian Conference on Computational Geometry, pp.169-174, August 1996.

Accepted for publication:

53. "Minimum separation in weighted subdivisions",
O. Daescu and J. Palmer,
International Journal of Computational Geometry & Applications, accepted October 2005.

Submitted for Publication:

54. "Stabbing balls and simplifying proteins",
O. Daescu and J. Luo,
Submitted to the *International Journal of Bioinformatics Research and Applications*, March 2006.
55. "Guarding a Terrain by Two Watchtowers",
P.K. Agarwal, S. Bereg, O. Daescu, S. Ntafos, M. Sharir and B. Zhu,
Submitted to *Algorithmica*, April 2006.
56. "k-Link Shortest Paths in Weighted Regions",
O. Daescu, J.S.B. Mitchell, S. Ntafos, J. Palmer and C.K. Yap,
Submitted to *ACM Transactions on Algorithms*, January 2007.
57. "Finding segments and triangles spanned by points in \mathbb{R}^n ",
S. Bitner and O. Daescu,
Submitted to the 13th Annual Intl. Computing and Combinatorics Conference, February 2007.
58. "Computing Simple Paths on Points in Simple Polygons",
O. Daescu and J. Luo,
Submitted to the 10th Workshop on Algorithms and Data Structures, February 2007.

Refereed Abstracts:

59. "Computing Simple Paths on Points in Simple Polygons",
O. Daescu and J. Luo,
16th Annual Fall Workshop on Computational Geometry and Visualization, November 2006.
60. "Farthest Segment Spanned by Points in \mathbb{R}^3 ",
S. Bitner and O. Daescu,
16th Annual Fall Workshop on Computational Geometry and Visualization, November 2006.
61. "An Experimental Study of Weighted k-Link Shortest Path Algorithms",
O. Daescu, J.S.B. Mitchell, S. Ntafos, J. Palmer and C.K. Yap,
15th Annual Fall Workshop on Computational Geometry and Visualization, November 2005.
62. "Proximity problems on line segments spanned by points",
O. Daescu and J. Luo,
14th Annual Fall Workshop on Computational Geometry, November 2004.
63. "Farthest point from line segment queries",
O. Daescu and R. Serfling,
14th Annual Fall Workshop on Computational Geometry, November 2004.
64. "Polygonal path approximation with angle constraints",
D.Z. Chen, O. Daescu, J. Hersberger, P.M. Kogge and J. Snoeyink,
10th Annual Fall Workshop on Computational Geometry, October 2000.
65. "Efficiently approximating polygonal paths in three dimensions",
G. Barequet, D.Z. Chen, O. Daescu and M.T. Goodrich,
Second CGC Workshop on Computational Geometry, October 1997.
66. "Recurrent series applications in life systems cybernetics",
O. Daescu,
National Conference of Cybernetics, Romania, November 1994.

67. "State space searching algorithms",
O. Daescu,
In *Proceedings of the First International Symposium on Economic Informatics*, Romania, May 1993.

Technical reports:

68. "Parallel content-based image analysis on PIM processors",
O. Daescu, P.M. Kogge and D.Z. Chen,
Technical Report Number 97-10, May 1997.

In Preparation:

61. "Finding optimal weighted bridges with applications",
O. Daescu and J.D. Palmer,
To be submitted to a journal.
62. "Finding segments and triangles spanned by points in \mathbb{R}^n ",
S. Bitner and O. Daescu,
To be submitted to a journal.
63. "Parallel k-link shortest paths in weighted regions",
O. Daescu,
To be submitted to a journal.
64. "Computing simple paths on points in simple polygons",
O. Daescu and J. Luo,
To be submitted to a journal.

Invited talks:

1. "Optimization problems in weighted regions",
Department of Computer Science, Southern Methodist University, April 2006.
2. "Polygonal chain approximation with applications",
Department of Computer Science, University of North Texas, December 2003.
3. "Efficient algorithms for approximating polygonal paths",
Invited talk at the Academic Seminar, Department of Mathematics, University of Texas at Dallas, September 2000.
4. "Optimizing the sum of linear fractional functions",
Invited talk at the Seminar in Applied Mathematics, Center for Applied Mathematics, University of Notre Dame, November 1999.

Presentations and talks:

1. "Optimal Path Problems with Medical Applications",
Neuroengineering Now, University of Texas at Dallas, June 2006.
1. "Optimal weighted links and applications",
Computer Science Colloquium, Dept. of Computer Science, Univ. of Texas at Dallas, April 2001.
2. "Efficient algorithms for approximating polygonal paths",
Seminar in Applied Mathematics, Center for Applied Mathematics, University of Notre Dame, September 1999.

3. "Efficiently approximating polygonal paths in two and higher dimensions", Graduate Workshop in Applied Mathematics, Center for Applied Mathematics, University of Notre Dame, March 1999.
4. "Efficient parallel algorithms for planar st-graphs", Graduate Workshop in Applied Mathematics, Center for Applied Mathematics, University of Notre Dame, February 1998.
5. "Tree structures and solutions space search methods", Scientific Communication Session, Technical Military Academy, Romania, June 1993.

External Funding:

- Weighted Region Problems: Theory and Algorithms.
Pi: Ovidiu Daescu
Funding Organization: NSF
Dates: September 15, 2006 - August 31, 2009
Award Amount: \$239,996
- Outlier Identification and Handling in Computational Geometry Problems.
Pi: Ovidiu Daescu
Co-Pi: Robert Serfling
Funding Organization: NSF
Dates: August 15, 2004 - July 31, 2006
Award Amount: \$99,972
- Resources for Research in Scalable Parallel Computing and Networking Simulations.
Pi: Gopal Gupta
Co-Pi: Ovidiu Daescu and Ravi Prakash
Funding Organization: NSF
Dates: September 15, 2001 - February 28, 2006
Award Amount: \$63,330
- Algorithms for Computing Optimal Weighted Links and Trajectories.
Pi: Ovidiu Daescu
Funding Organization: Clark Foundation Research Initiation Grants Program (through UTD)
Dates: January 2002 - December 2002
Award Amount: \$14,000

Current Doctoral Students Advised:

- Jun Luo, graduated Spring 2006, now postdoctoral researcher at Utrecht University, The Netherlands.
- James Dean Palmer, graduated Spring 2006, now Assistant Professor at Northern Arizona University.
- Anastasia Kurdia, from Fall 2005.
- Steven Bimer, from Fall 2006.
- Yan Ki Cheung, from Spring 2007.

Master Students Advised:

- Karthik Haridoss, MS with Thesis, December 2002, now at IPNefusion, Richardson, TX.
- Pratap Chandran, MS with Thesis, May 2005, now at Qualcomm, San Diego, CA.

Bachelor Honors Advisement/Directions:

- Jonathan Fickenscher, Honor Thesis, graduated in Spring 2006, now a PhD at Rice University.
- Scott Owen, graduated in Spring 2006, now working for a leading tech company in DFW.

Other Students Advised:

- Ningfang Mi, PhD, Fall 2002 – Spring 2004.
- Ashish Bhatia, MS, Fall 2001 – Spring 2002.
- Michael Chiang, Clark Summer Research Participation Program, Summer 2002.
- Andrew Hemmings, Clark Summer Research Participation Program, Summer 2003.
- Quick John, Clark Summer Research Participation Program, Summer 2004.
- Rachel Ernst, Clark Summer Research Participation Program, Summer 2004.
- Jiayun Chen, Clark Summer Research Participation Program, Summer 2005.
- Terrence Jones, Clark Summer Research Participation Program, Summer 2006.

PhD committee member for:

Cathy Xu, Advisor Yuke Wang.
Xueron Feng, Advisor Hal Sudborough.
Kong Jun, Advisor Kang Zhang.
Raja Jothi, Advisor Balaji Raghavachari.
Larry Singh, Advisor G.R. Datatreya.
Bing Yang, Advisor S.Q. Zheng.
Tao Zhang, Advisor Jason Jue.
Jason Xue, Advisor Edwin Sha.
Parin Shah, Advisor Balakrishnan Prabhakaran.
Hui Li, Advisor Balakrishnan Prabhakaran.
Yuanli Zhang, Advisor Sergey Bereg.
Prabakar Gubbala, Advisor Balaji Raghavachari.
Ajay Mallia, Advisor Gopal Gupta.
Bhadrachalam Chitturi, Advisor Hal Sudborough.
Junqiang Zhu, Advisor Simeon Ntafos.

Professional Service:

- Co-organizer and co-chair of the 3rd International Workshop on Computational Geometry and Applications, Montreal, Canada, May 2003.
- Member, Program Committee, International Workshop on Computational Geometry and Applications, 2002-2006.
- Member, Program Committee, International Conference on Wireless and Mobile Communications, 2006.
- Member, Program Committee, International Multi-Conference on Computing in the Global Information Technology, 2006.
- Member, Program Committee, Computing and Combinatorics Conference, 2007.
- Member, Program Committee, International Symposium on Voronoi Diagrams, 2006-2007.

- Reviewer (Journals): International Journal of Computational Geometry and Applications, Computational Geometry: Theory & Applications, Theoretical Computer Science, Journal of Algorithms, SIAM Journal on Computing, Information Processing Letters, Texas Journal of Science.
- Reviewer (conferences): European Symposium on Algorithms (ESA), Symposium on Computational Geometry (SoCG), Graph Drawing (GD), International Workshop on Computational Geometry and Applications (CGA), International Parallel Processing Symposium (IPPS), Symposium on Frontiers of Massively Parallel Computing (FMPC), International Conference on Parallel and Distributed Computing Systems (ISCA-ICPDCS), International Conference on Algorithms & Architecture for Parallel Processing (ICA3PP), Parallel and Distributed Computing Systems (PDCS), International Conference on Distributed Computing Systems (ICDCS).

University Service:

- 2000-2001, PhD recruiting committee, Department of Computer Science. Organizer of PhD recruiting Colloquium, September 2000.
- 2001-2002, PhD recruiting committee, Graduate admission committee, TA selection committee, Department of Computer Science. Organizer of PhD recruiting Colloquium, September 2001.
- 2002-2003, PhD committee, Graduate admission committee, Department of Computer Science. Organizer of PhD recruiting Colloquium, September 2002.
- 2003-2005, Committee on Biotechnology, University of Texas at Dallas.
- 2003-2006, Master Research Track committee, Department of Computer Science.
- 2002-present, ABET team leader for CS3345 or CS4349, Department of Computer Science.
- 2005-present, member of advisory committee for biotechnology school of EECS.
- 2005-present, member of the curriculum committee, Department of Computer Science.

G. R. Dattatreya

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Richardson, Texas 75083-0688
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Cell: 469-396-3998
Fax: 972-883-2349
Email: dattat@utdallas.edu
URL: <http://www.utdallas.edu/~datta>

Research Interests

Research theme: Stochastic Modeling, Parameter Estimation, Adaptive Optimization, and Simulation in Communication Networks and Signal Processing. Specific subtopics and applications: (a) Mobile ad hoc networks and Sensor networks (b) Cognitive and software defined radio (c) In-layer and Cross-layer performance optimization in data networks (d) Performance modeling and analysis of IT middleware.

Education

- **Doctor of Philosophy** (1981) from The School of Automation, Indian Institute of Science, Bangalore, India. Dissertation work is based on Pattern Recognition, Speech Processing, and Adaptive Learning Systems.
- **Master of Engineering** (1977) in Electrical Communication Engineering, Indian Institute of Science, Bangalore, India. Emphasis on Signal Processing, Statistical, Speech, and Microwave Communication Engineering.
- **Bachelor of Technology** (1975) in Electronics and Communication Engineering, Indian Institute of Technology, Madras, India.

Employment

- **Associate Professor** (current) Department of Computer Science, School of Engineering and Computer Science, University of Texas at Dallas.
- **International Visitor and Visiting Professor** (June 1999 - May 2000), Center for Artificial Intelligence, ITESM, Monterrey, Mexico.
- **Consultant** (June - Dec. 1996), Institute Technology Tun Hussein Onn, University Technology, Batu Pahat, Johor, Malaysia

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- **Assistant Professor** (Jan. 1986 - Aug. 1991), Computer Science Program, University of Texas at Dallas.
- **Visiting Assistant Professor** (1983-85), The Machine Intelligence and Pattern Analysis Laboratory, Department of Computer Science, University of Maryland, College Park, MD 20742. Responsibilities: Research and Teaching in Pattern Recognition, Artificial Intelligence, and related areas.
- **Senior Scientist** (1981-82), Scientific Analysis Group, Delhi - A Government of India Defense Research Laboratory. Responsibilities: Research and training scientists in Speech coding, scrambling and De-scrambling (including Spread Spectrum techniques), and Pattern Recognition.

Personal

US Citizen

Externally Funded Contracts at UTD

- Developing Advanced Middleware for Convergence of IT and Telecommunications (with F. Bastani, L. Khan, and I.-L. Yen), Alcatel Networks, \$ 227,500 for year 2004.
- Graphical and Multi-Modal Proxy Server (with F. Bastani and I.-L. Yen), Alcatel Networks, \$ 113,000 for year 2003.
- "Graphical Proxy" (with F. Bastani), Alcatel Networks, \$ 80,000 for year 2002.
- Doug Harris, Simeon Ntafos, G. R. Dattatreya, "Performance and Quality Studies in Telecommunications products and Services for SBC" (with D. Harris, and S. Ntafos), SBC Services, Inc., \$ 38,737 for Summer 2002.
- "Server load balancing," Alcatel, through UTD Embedded Software Center, \$ 12,500 for Fall 2001.
- "Router interoperability testing," Alcatel, through UTD Embedded Software Center, \$ 16,000 for Summer 2001.
- "Development of telecommunication quality index project plan," through QnEST Forum funding to UTD, \$ 8,000 for Summer 2001.
- "A Study of Strategies for IP Quality of Service," (with B. Chen, R. Prakash, I. L. Yen, and S. Q. Zheng) Alcatel Network Systems, Inc., Richardson, TX; \$50,000, Jan. - Dec. 1999.
- Consultant on the World Bank funded "Malaysia Polytechnic Development Project," \$63,000, June - Dec. 1996.

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- "Development of a Simulation Model for High Density Communication Network," Electrospace Systems, Inc., Richardson, TX; \$30,000, June - Dec. 1994.
- "Network Modeling and Optimization Problems," (with Dr. S. Venkatesan) Alcatel Network Systems; \$90,000 for June-Dec. 1992.

Private Consulting

1. Consultant on Wireless Networks at Rockwell Collins, Inc. Richardson, TX. Full time: Summer 2005. Part time: Sept. 2005 - May 2006.
2. Training Programmers at Perot Systems, Inc., Spring 1996.

Organized Courses Taught

(at UTD, ITESM, Monterrey, University of Technology, Malaysia, and University of Maryland, College Park, MD)

- Advanced Graduate "Pattern Recognition with Neural Networks."
- Advanced Graduate "Stochastic Methods in Communication and Computer Networks."
- Graduate "Performance of Computer Systems and Networks."
- Graduate "Quantitative Modeling of Information Systems."
- Graduate "Digital Logic Design."
- Senior/graduate "Computer Networks."
- Senior/graduate "Computer Architecture."
- Undergraduate "Operating Systems."
- Undergraduate "Data Structures," and
- Undergraduate "Probability, Markov Chains, and Queues."

PhD Students' Supervision at UTD (Completed)

- As advisor
 - CS PhD student Larry N. Singh. Dissertation: Estimation of finite mixture densities with applications in data networks. Fall 2004. Dr. Singh is currently a Postdoctoral Fellow in Bioinformatics, School of Medicine, University of Pennsylvania, Philadelphia.

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- CS PhD student S. Kulkarni. Dissertation: Adaptive load balancing over multiple routes in mobile ad hoc networks. Fall 2002. Dr. Kulkarni is currently an Assistant Professor in the department of Electrical and Computer Engineering, Villanova University, Philadelphia, Pennsylvania.
- CS PhD student R. Venkatesh. Dissertation: Average response time minimization in two configurations of distributed computing systems, 1990.
- As member, supervisory committee
 - Member, supervisory committee for CS PhD student S. Kuppa. Dissertation: Characterizing the expected performance of IEEE 802.11 DCF and its QoS enhancements. Spring 2006.
 - Member, supervisory committee for EE PhD student K. Lu. Dissertation: Dynamic light path establishment in wavelength-routed networks: Analytical model and new control schemes. Dec. 2003
 - Member, supervisory committee for CS PhD student D. Montgomery. Dissertation: The low power optical network. Aug. 2003.
 - Member, supervisory committee for CS PhD student S. Nesargi. Dissertation: Distributed approaches to design network services in rapidly deployable wireless networks, Fall 2002.
 - Member, supervisory committee for CS PhD student Rodolfo Castello. Dissertation topic: From informal specification to formalization: An automated visualization approach. Fall 2000.
 - Member, supervisory committee for Electrical Engineering PhD student Uning Ko. Dissertation topic: Low Power Digital Electronics. 1995.
 - Member, supervisory committee for CS PhD student Tony Juang. Dissertation: Crash Recovery in Distributed Systems. 1992.
 - Member, supervisory committee for CS PhD student Kun-Ming Yu; Dissertation: Approximation Algorithms for Minimizing the Number of Tardy Units in Real-Time Systems. Jan. 1992.
 - Member, supervisory committee for CS PhD student Mike Goss; Dissertation: Techniques for Increased Realism in Visual Simulation and Scientific Visualization. May 1991.
 - Member, supervisory committee for CS PhD student Eric Churn. Dissertation: The Generalized Mutual Exclusion Problem in Computer Systems. Sept. 1989.
 - Member, supervisory committee for CS PhD student Hal Badt. Dissertation: Temporal Coherence in Ray Tracing. 1989.
 - Member, supervisory committee for Operations Research PhD student L. S. Narasimhan. Dissertation: Recognition of Polyhedral Objects: Concepts and Algorithms, 1988.

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PhD student's Supervision at UTD (Current)

- Advisor for CS PhD student Ajay Kulkarni. Research topic: Computer and Telecommunication Networks

Service at UTD

• Professional activities

1. Conference chair, 10th WSEAS International Conference on Applied Mathematics and 5th WSEAS International Conference on Circuits, Systems, Electronics, Control, and Signal Processing, Dallas, TX November 1 - 3, 2006.
2. Member, IEEE
3. Served as referee for several IEEE Transactions and other journals.
4. Served as external Ph. D. theses examiner for Indian Institute of Science.

• University Service

1. Member CS Ph. D. Committee, Fall 2004 - present.
2. Member, committee to select best CS PhD dissertation, 2006.
3. ABET Course coordinator for the course CS 4340 Computer Architecture (continuing)
4. SACS Course coordinator for the course CS 6352 Performance of Computer Systems and Networks (continuing)
5. Chair, CS committee to reorganize Computer Architecture and Computer design courses, 2006
6. Member, UTD Senate, Fall 2003 - Spring 2005.
7. Member, University-wide committee on Distance Learning, Fall 2003 - Spring 2005.
8. CS Graduate Curriculum Committee Chair, Fall 2000 - Summer 2004.
9. CS Graduate Admissions and Financial Aid Committee: Summer 1997 - Spring 1999 and Spring 1987 - Summer 1992 (Chair during Summer 1997 - Spring 1999 and Fall 1991 - Summer 1992).
10. CS Faculty Search Committee: Fall 1992 - Summer 1995 (Chair during 1993-94)
11. CS Curriculum Committee, Fall 1992 - Summer 96 (chair during 1992-93, 1995 - 1996).
12. Secretary of the Faculty: CS Program, Spring 1987 - Summer 1995
13. Member, UTD Senate: 1992 - 1993
14. Member, Engineering and Computer Science School Policy Planning and Development Committee: Fall 1990 - Summer 1992
15. Member, UTD Faculty Handbook Committee: Fall 1990 - Summer 1992

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16. CS Graduate Advising Committee: Spring and Summer 1987
17. CS Library Committee: Fall 1986
18. CS Undergraduate Advising Committee: Summer 1986

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Scholarly Publications

- Text book
 1. G. R. Dattatreya, *Elements of Queues and Performance Analysis of Computer Networks*. CRC Press, to appear.
- Intellectual property disclosures
 1. G. R. Dattatreya, "Recursive parameter estimation of QAM signals," IP Disclosure, Rockwell Collins, Inc., 2005.
 2. G. R. Dattatreya, "Parameters and direction estimation of QAM emitter for electronic intelligence, cognitive radio, and directional mobile ad hoc networks," IP Disclosure, Rockwell Collins, Inc., 2006.
 3. G. R. Dattatreya, "Adaptive multicast in highly dynamic ad-hoc networks," IP Disclosure, Rockwell Collins, Inc., 2006.
- Journal papers
 1. L. N. Singh and G. R. Dattatreya, "Channel and data estimation for ad hoc networks and cognitive radio," To appear in *International Journal of Wireless Information Systems*,
 2. L. N. Singh and G. R. Dattatreya, "Estimation of the hyperexponential density with applications in sensor networks," To appear in *International Journal of Distributed Sensor Networks*,
 3. L. N. Singh and G. R. Dattatreya, "Gaussian mixture parameter estimation for cognitive radio and network surveillance applications," *WSEAS Transactions on Communications*, vol. 5, issue 3, March 2006, pp. 423 - 428.
 4. G. R. Dattatreya, "Estimation of peer-to-peer network's bursty traffic parameters," *WSEAS Transactions on Computers*, vol. 4, issue 12, Dec. 2005, pp. 1725 - 1732.
 5. G. R. Dattatreya and Larry Singh, "Relationships among different models for discrete-time queues," *WSEAS Transactions on Systems*, volume 4, Issue 8, August 2005, pp. 1183 - 1190.
 6. S. S. Kulkarni, G. R. Dattatreya, H. Martinez, and R. Soto, "Adaptive control of heterogeneous ad hoc networks," *Wireless Communications and Mobile Computing*, vol. 4, Dec. 2004, pp. 963 - 975.
 7. G. R. Dattatreya and S. S. Kulkarni, "Performance of communication networks fielding bursty data traffic," *Annual Review of Communications*, International Engineering Consortium, vol. 57, November 2004, pp. 1259 - 1273.
 8. S. S. Kulkarni and G. R. Dattatreya, "SMART: Statistically multiplexed adaptive routing techniques for ad hoc networks," *Wireless Networks. The Journal of Mobile Communication, Computation, and Information*, vol. 10, Mar. 2004, pp. 89 - 101.

9. G. R. Dattatreya and X. Fang, "Parameter estimation: known vector signals in unknown Gaussian noise," *Pattern Recognition*, vol. 36, 2003, pp. 2317 - 2332.
10. G. R. Dattatreya, "Gaussian mixture parameter estimation with known means and unknown class-dependent variances," *Pattern Recognition*, vol. 35, July 2002, pp. 1611 - 1616.
11. G. R. Dattatreya and R. Venkatesh, "Static and decentralized-adaptive Load balancing in a star configured distributed computing system," *IEEE Transactions on Systems, Man, and Cybernetics*, vol. 26, Jan. 1996, pp. 91 - 104.
12. G. R. Dattatreya, "A Systematic approach to teaching binary arithmetic in a first course," *IEEE Trans. Education*, vol. 36, Feb. 1993, pp. 163-167.
13. G. R. Dattatreya, "Unsupervised context estimation in a mesh of pattern classes for image recognition," *Pattern Recognition*, vol. 24, no. 7, pp. 685-694, 1991.
14. G. R. Dattatreya and R. Venkatesh, "Adaptive performance optimization of loosely coupled processors," *IEEE Trans. on Systems, Man, and Cybernetics*, vol. SMC-21, pp. 607-619, May/June 1991.
15. G. R. Dattatreya and L. N. Kaul, "Asymptotically efficient estimation of prior probabilities in multiclass finite mixtures," *IEEE Trans. Information Theory*, vol. IT-37, pp. 482-489, May 1991.
16. G. R. Dattatreya, "Estimation of prior and transition probabilities in multiclass finite Markov mixtures," *IEEE Trans. Systems, Man, and Cybernetics*, vol. SMC-21, pp. 418-426, Mar./Apr. 1991.
17. G. R. Dattatreya and L. N. Kaul, "Detection and smoothing of edge contours in images by one dimensional Kalman techniques," *IEEE Trans. Systems, Man, and Cybernetics*, vol. SMC-20, pp. 159-165, Jan./Feb. 1990.
18. G. R. Dattatreya and L. N. Kaul, "Estimation of mixing probabilities in multiclass finite mixtures," *IEEE Trans. Systems, Man, and Cybernetics*, vol. SMC-20, pp. 149-158, Jan./Feb. 1990.
19. G. R. Dattatreya and L. N. Kaul, "Adaptive pattern recognition with random costs and its application to decision trees," *IEEE Trans. Systems, Man, and Cybernetics*, vol. SMC-16, pp. 208-218, Mar./Apr. 1986.
20. G. R. Dattatreya and V. V. S. Sarma, "Decision tree design and applications in speech processing," *IEEE Proceedings (England)*, Part F, Communications, Radar, and Signal Processing, vol. 131, pp. 146-152, Apr. 1984.
21. G. R. Dattatreya and V. V. S. Sarma, "An adaptive scheme for learning the probability threshold in pattern recognition," *IEEE Trans. Systems, Man, and Cybernetics*, vol. SMC-12, pp. 927-934, Nov./Dec. 1982.
22. G. R. Dattatreya and V. V. S. Sarma, "Bayesian and decision tree approaches for pattern recognition including feature measurement costs," *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. PAMI-3, pp. 293-298, May 1981.

23. G. R. Dattatreya and V. V. S. Sarma, "A new distance measure for vowel recognition," *J. Institut. Electronic and Telecomm. Engrs. (India)*, vol. 26, pp. 77-81, Jan. 1980.

• Book chapters

1. G. R. Dattatreya "Decision trees," To appear in the book *Applications of Artificial Intelligence Methods in Environmental Science*, Edited by S.E. Haupt, C. Marzban, and A. Pasini. Springer.
2. L. N. Kanal and G. R. Dattatreya, "Pattern recognition," In S. C. Shapiro, Ed., *Encyclopedia of Artificial Intelligence*. Second Edition, NY: John Wiley, 1992, pp. 1116-1129.
3. L. N. Kanal and G. R. Dattatreya, "Pattern recognition," In S. C. Shapiro, Ed., *Encyclopedia of Artificial Intelligence*. NY: John Wiley, 1987, pp. 720-729;
4. L. N. Kanal and G. R. Dattatreya, "Problem solving methods for pattern recognition," In T. Y. Young and K. S. Fu, Eds., *Handbook of Pattern Recognition and Image Processing*. New York: Academic Press, 1986, pp. 143-165.
5. G. R. Dattatreya and L. N. Kanal, "Decision trees in pattern recognition," In L. N. Kanal and A. Rosenfeld, Eds., *Progress in Pattern Recognition 2*. Amsterdam: North Holland, 1985, pp. 189-239.

• Conferences

1. S. Kuppa and G. R. Dattatreya, "Modeling and analysis of frame aggregation in unsaturated WLANs with finite buffer stations," IEEE International Communications Conference (ICC 2006), Istanbul, Turkey, June 2006.
2. G. R. Dattatreya, "Hurst parameter estimation from noisy observations of data traffic Traces," WSEAS International Conference on Electronics, Control, and Signal Processing, Nov. 17 - 19, 2005, Miami Florida.
3. L. N. Singh and G. R. Dattatreya, "Cognitive radio channel and user assessment and tracking," IEEE 62nd Semiannual Vehicular Technology Conference (VTC F05), September 25-28, 2005 Dallas, Texas.
4. G. R. Dattatreya and L. N. Singh, "Performance analysis of discrete-time queues in slotted networks," 5th WSEAS International Conference on Applied Electromagnetics, Wireless and Optical Communications, Corfu Island, Greece, August 23-25, 2005
5. L. N. Singh and G. R. Dattatreya, "A novel approach to parameter estimation in Markov-modulated Poisson processes," IEEE Emerging Technologies Conference, Richardson, TX, Oct. 2004.
6. L. N. Singh and G. R. Dattatreya, "Estimation of channel and data statistics in some digital wireless communication systems," Proceedings of Wireless Communications and Networking Conference (WCNC 04), Atlanta, GA, Mar. 21 - 25, 2004, vol. 1, pp. 7 - 11.

9

7. G. R. Dattatreya, S. S. Kulkarni, H. Martinez, and R. Soto, "Adaptive control of heterogeneous ad hoc networks," Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics, Nashville, TN, Oct. 2000, vol. 5, pp. 3431 - 3436.
8. G. R. Dattatreya, "High performance telecommunication networks," A ninety minute invited presentation in VII International Symposium on Computational Systems: Digital Convergence 2000, Saltillo, Coah., Mexico, Oct. 13 - 15, 1999.
9. G. R. Dattatreya and S. Kulkarni, "Simulation of adaptive statistically multiplexed routing in ad hoc networks," Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC '99), New Orleans, LA, Sept. 1999, vol. 2, pp. 931 - 935.
10. S. Kulkarni and G. R. Dattatreya, "Statistically multiplexed adaptive operation of ad hoc networks with self-similar traffic," Proceedings of the 1999 IEEE Emerging Technologies Symposium on Wireless Communications and Systems. Richardson, TX, Apr. 1999, Session 8, Paper 2, pp. 1 - 5.
11. G. R. Dattatreya and X. Fang, "Parameter Estimation and Applications of a Class of Gaussian Models," Proceedings of The IEEE Southwest Symposium on Image Analysis and Interpretation, Dallas, TX, April 1994, pp. 18 - 23.
12. G. R. Dattatreya and R. Venkatesh, "Average response time minimization in star-connected computer networks," Proceedings of The Second IEEE Symposium on Parallel and Distributed Processing, Dallas, Dec. 1990, pp. 591-594.
13. R. Venkatesh and G. R. Dattatreya, "Adaptive Optimal Load Balancing of Loosely Coupled Processors with Arbitrary Service Time Distributions," Proceedings of the 1990 International Conference on Parallel Processing, Aug. 1990, Chicago, Illinois, pp. 1.22-1.25.
14. G. R. Dattatreya, "Estimation of class correlation parameters in images for context classification," Proceedings of the 10th International Conference on Pattern Recognition, Atlantic City, NJ, June 1990, pp. 937-941.
15. G. R. Dattatreya and R. Venkatesh, "Adaptive performance optimization of Loosely coupled processors," Proceedings of the Fourth Annual Symposium on Parallel Processing, Fullerton, CA, Apr. 1990, pp. 416-430.
16. G. R. Dattatreya and R. Venkatesh, "Adaptive performance optimization of a two processor distributed computing system," Proc. First Annual IEEE Symposium on Parallel and Distributed Processing, Dallas, May 1989, pp. 366-367.
17. G. R. Dattatreya, "Neural network approach for decision trees," Vision '89, Society of Manufacturing Engineers, Chicago, Apr. 25-27, 1989, pp. 9-19 - 9-26.
18. G. R. Dattatreya and L. N. Kanal, "Asymptotically efficient estimation of prior probabilities in multiclass finite mixtures," Proc. Twenty Sixth Annual Allerton Conference on Communication, Control, and Computing, Urbana, Ill, Sept. 1988, pp. 15-24.

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19. G. R. Dattatreya and L. N. Kanal, "Detection and smoothing of edge contours in images by one dimensional Kalman techniques," Proc. Int. Conf. Acoust., Speech, Signal Processing, NY, Apr. 1988, pp. 1052-1055.
20. G. R. Dattatreya and L. N. Kanal, "Estimation of *a priori* class probabilities in multicategory information processing," Proc. 1985 IEEE Int. Conf. Cybernetics and Society, Tucson, AZ, Nov. 1985, pp. 73-77.
21. F. -L. Xiong, G. R. Dattatreya, and L. N. Kanal, "Hierarchical methods for leukocyte classification," Proc. 1983 IEEE Int. Conf. Systems, man, Cybernetics, Bombay and New Delhi, India, Dec. 1983-Jan. 1984, pp. 403-407.
22. G. R. Dattatreya and L. N. Kanal, "Adaptive improvement of pattern recognition trees," Proc. 1983 IEEE Int. Conf. Systems, Man, Cybernetics, Bombay and New Delhi, India, Dec. 1983-Jan. 1984, pp. 393-397.
23. G. R. Dattatreya and V. V. S. Sarma, "An adaptive pattern recognition scheme with application in medical diagnosis," Proc. IFAC Symposium on Theory and Applications of Digital Control, New Delhi, India, Jan. 1982.
24. G. R. Dattatreya and V. V. S. Sarma, "Decision tree design for pattern recognition including feature measurement cost," Proc. Fifth Int. Joint Conf. Pattern Recognition, Miami Beach, Florida, Dec. 1980, pp. 1212-1214.
25. H. M. Dante, V. V. S. Sarma, and G. R. Dattatreya, "Multistage decision schemes for speaker recognition," Proc. IEEE Int. Conf. Acoust., Speech, and Signal Processing, Washington, D.C., Apr. 1979, pp. 797-800.

Jing Dong

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PROFESSIONAL INTERESTS

- Software engineering, component-based software systems
- Software architecture and frameworks, design patterns, object-oriented design, UML
- Web service, e-Commerce, hypermedia and Web-based applications
- Formal specification and verification methods, dependable and secure computing

EDUCATION

- Ph.D. 2002, Computer Science, University of Waterloo, Canada.
Dissertation: Design Component Contracts: Modeling and Analysis of Pattern-Based Compositions
Committee: Donald D. Cowan (chair), Daniel M. Berry, Oscar Nierstrasz (external), Paulo Alencar and Kostas Kontogiannis
- M.Math 1997, Computer Science, University of Waterloo, Canada.
Thesis: A Transformational Process-Based Formal Approach to Object-Oriented Design
Committee: Donald D. Cowan (chair), Joanne M. Atlee and Paulo Alencar
- B.Sc. 1992, Computer Science, Peking University, Beijing, China.

PROFESSIONAL EXPERIENCE

- Assistant Professor, Aug. 2002 – now
Department of Computer Science, University of Texas at Dallas, USA.
- Research Assistant, Sept. 1995 – May 1997, Sept. 1997 – Aug. 2002
Department of Computer Science, University of Waterloo, Canada.
- Teaching Assistant, Sept. 1995 – April 1997, Sept. 1997 – April 2000
Department of Computer Science, University of Waterloo, Canada.
- Software Engineer, June 1997 – Sept. 1997
Computer Systems Group, University of Waterloo, Canada.
- Software Engineer, Aug. 1993 – Aug. 1995
Database and Multimedia Group, Peking University, Beijing, China.
- Software Developer, Aug. 1992 – Aug. 1993
Beida Founder Group Inc., Beijing, China.

TEACHING

- CS6362: Software Architecture and Design (Fall 2002, Spring 2003, Fall 2003, Spring 2004, Fall 2004, Spring 2005, Fall 2005, Spring 2006, Summer 2006, Fall 2006, Spring 2007)
- CS/SE4352: Software Architecture and Design (Spring 2005, Spring 2006, Spring 2007)
- CS6362: Software Architecture and Design, Research Track (Fall 2003)
- Guest Lectures in CS7301: Programming Language and Software Engineering (Nov.2002)

PUBLICATIONS

Refereed Journal Papers:

1. Jing Dong, Sheng Yang and Kang Zhang, Visualizing Design Patterns in Their Applications and Compositions, *IEEE Transaction on Software Engineering (TSE)*, Minor Revision Submitted on December 20, 2006.
2. Jing Dong, Paulo Alencar, Donald Cowan and Sheng Yang, Composing Pattern-Based Components and Verifying Correctness, *the International Journal on Systems and Software (JSS)*, Major revision, 2007.
3. Jing Dong, Sheng Yang, and Yongtao Sun, A Classification of Design Pattern Evolutions, *the International Journal of Object Technology (IJOT)*, 2007. (to appear)
4. Jing Dong, Yongtao Sun, Sheng Yang, and Kang Zhang, Dynamic Web Service Composition Based on OWL-S, *Science in China: Special Issue on Internet-Oriented Software Technologies*, Springer-Verlag, Volume 49, Number 6, pages 843-863, December 2006. (SCI Index)
5. Jing Dong, Paulo Alencar, and Donald Cowan, Automating the Analysis of Design Component Contracts, *the International Journal of Software - Practice and Experience (SPIE)*, Wiley, Volume 36, Number 1, pages 27-71, January 2006. (45 pages)
6. Jing Dong, Paulo Alencar, and Donald Cowan, A Behavioral Analysis and Verification Approach to Pattern-Based Design Composition, *the International Journal of Software and Systems Modeling (SoSyM)*, Springer-Verlag, Volume 3, Number 4, December 2004, Pages 262-272.
7. Jing Dong, Adding Pattern Related Information in Structural and Behavioral Diagrams, *the International Journal of Information and Software Technology (IST)*, Elsevier-Science, Volume 46, Issue 5, April 2004, Pages 293-300. (Accept rate: 30%)
8. Daniel M. Berry, Khuzaima Daudjee, Jing Dong, Igor Fineststein, Maria Nelson, Torsten Nelson, and Lihua Ou, User's Manual as a Requirements Specification: Case Studies, *the International Journal of Requirements Engineering (RE)*, Springer-Verlag, Volume 9, No 1, February 2004, Pages 67-82. (Accept rate: 25%)

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9. Jing Dong, UML Extensions for Design Pattern Compositions, *the International Journal of Object Technology (IJOT)*, Vol. 1, No. 5, pages 149-161, November 2002. (Cited by 15 research papers by other researchers, including one from ICSE'04, according Google Scholar as of 2/18/2007)

Book Chapters:

10. Jing Dong, Paulo Alencar, and Donald Cowan, Formal Specification and Verification of Design Patterns, in *Design Pattern Formalization Techniques*, Idea Group Inc., 2006. (to appear)
11. Jing Dong and Jianchao Han, Class and Object, in *Encyclopedia of Computer Science and Engineering*, John Wiley & Sons, Inc., 2006 (to appear).
12. Jing Dong and Kang Zhang, Design Pattern Compositions in UML, in *Software Visualization - From Theory to Practice*, Kluwer Academic Publishing, pages 287-308, 2003.

Refereed Conference Papers:

13. Jing Dong and Yajing Zhao, Experiments on Design Pattern Discovery, *the Proceedings of the 3rd International Workshop on Predictor Models in Software Engineering (PROMISE)*, in conjunction with ICSE, Minneapolis, MN, USA, May 2007. (to appear)
14. Jing Dong, Dushyant S. Lad and Yajing Zhao, DP-Miner: Design Pattern Discovery Using Matrix, *the Proceedings of the Fourteenth Annual IEEE International Conference on Engineering of Computer Based Systems (ECBS)*, Arizona, USA, March 2007. (to appear)
15. Jing Dong, Sheng Yang, Dushyant S. Lad, and Yongtao Sun, Service Oriented Evolutions and Analyses of Design Patterns, *the Proceedings of the Second IEEE International Symposium on Service-Oriented System Engineering (SOSE)*, pages 11-18, October 2006.
16. Jing Dong, Sheng Yang, Yongtao Sun, and W. Eric Wong, QVT Based Model Transformation for Design Pattern Evolutions, *the Proceedings of the Tenth IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA)*, pages 16-22, USA, August 2006.
17. Jing Dong, Yongtao Sun, Sheng Yang, OWL-S Ontology Framework Extension for Dynamic Web Service Composition, *the Proceedings of the Eighteenth International Conference on Software Engineering and Knowledge Engineering (SEKE)*, pages 544-549, San Francisco Bay, California, USA, July 2006.
18. Jing Dong, Sheng Yang and Kang Zhang, A Model Transformation Approach for Design Pattern Evolutions, *the Proceedings of the Thirteenth Annual IEEE International Conference on Engineering of Computer Based Systems (ECBS)*, pages 80-89, Germany, March 2006.

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19. Jing Dong, Sheng Yang and Dung T. Huynh, Evolving Design Patterns Based on Model Transformation, the Proceedings of the Ninth IASTED International Conference on Software Engineering and Applications (SEA), pages 344-350, Phoenix, AZ, USA, November 2005.
20. Kendra Cooper, Jing Dong, Kang Zhang, and Lawrence Chung, Teaching Experiences with UML at The University of Texas at Dallas, the Proceedings of the ACM / IEEE 8th International Conference on Model Driven Engineering Languages and Systems Educator's Symposium, Montego Bay, Jamaica, October 2005.
21. Jun Kong, Guanglei Song, and Jing Dong, Specifying Behavioral Semantics through Graph Transformation, the Proceedings of the International Workshop on Visual Modeling for Software Intensive Systems (VMSIS), co-located with the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC'05), Dallas, Texas, USA, September 2005.
22. Jun Kong, Kang Zhang, and Jing Dong, Grammar-Specified Model-Driven Architectures, the Proceedings of the International Workshop on Using Metamodels to Support MDD, in Conjunction with ICECCS, China, June 2005.
23. Jing Dong, Sheng Yang, Lawrence Chung, Paulo Alencar and Donald Cowan, A COTS Architectural Component Specification Stencil for Selection and Reasoning, the Proceedings of the Second International Workshop on Models and Processes for the Evaluation of off-the-shelf Components (MPEC), in conjunction with ICSE, USA, May 2005.
24. Jing Dong, Shanguo Chen and Jun-jang Jeng, Event-Based Blackboard Architecture for Multi-Agent Systems, the Proceedings of the IEEE International Conference on Information Technology: Coding and Computing (ITCC), pages 379-384, USA, April 2005.
25. Jing Dong, Sheng Yang and Kang Zhang, VisDP: A Web Service for Visualizing Design Patterns on Demand, the Proceedings of the IEEE International Conference on Information Technology: Coding and Computing (ITCC), pages 385-391, USA, April 2005.
26. Jun Kong, Kang Zhang, Jing Dong, and Guanglei Song, A Generative Style Driven Framework for Software Architecture Design, the Proceedings of the 29th Annual NASA/IEEE Software Engineering Workshop (SEW), pages 173-182, Maryland, USA, April 2005.
27. Jing Dong, Rucha Khisti, Kendra Cooper, and Yi Deng, A Component Framework for Resource Management Systems, the Proceedings of International Conference on Software Engineering Research and Practice (SERP), pages 681-687, Las Vegas, Nevada, USA, June 2004.

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28. Jing Dong and Sheng Yang, Towards Trusted Composition in Software Design, the Proceedings of the IEEE International Symposium on High Assurance Systems Engineering (HASE), pages 306-307, Tampa, Florida, USA, March 2004.
29. Jun Kong, Kang Zhang, Jing Dong, and Guanglei Song, A Graph Grammar Approach to Software Architecture Verification and Transformation, the Proceedings of the IEEE 27th Annual International Computer Software & Applications Conference (COMPSAC), pages 492-497, Dallas, Texas, USA, November 2003.
30. Jing Dong and Sheng Yang, Visualizing Design Patterns With A UML Profile, the Proceedings of the IEEE International Symposium on Visual/Multimedia Languages (VL), pages 123-125, Auckland, New Zealand, October 2003.
31. Jing Dong, Paulo Alencar, and Donald Cowan, A Formal Framework for Design Component Contracts, the Proceedings of the IEEE International Conference on Information Reuse and Integration (IRI), pages 53-60, Las Vegas, USA, October 2003.
32. Kendra Cooper, Lirong Dai, Yi Deng, and Jing Dong, Modeling Performance as an Aspect: a UML Based Approach, the Proceedings of the Fourth International Workshop on Aspect Oriented Modeling with UML, San Francisco, CA, USA, October 2003.
33. Jing Dong, Paulo Alencar, and Donald Cowan, An Analysis of Design Component Contracts: A Case Study, the Proceedings of the IEEE International Conference on Software Technology and Engineering Practice (STEP), pages 103-113, Amsterdam, The Netherlands, Sept., 2003.
34. Jing Dong, Towards A Formal Design Component Framework, the Proceedings of the International Workshop on Software Development Methodologies of Distributed Systems, Amsterdam, The Netherlands, Sept., 2003
35. Jing Dong and Sheng Yang, Extending UML To Visualize Design Patterns In Class Diagrams, the Proceedings of the Fifteenth International Conference on Software Engineering and Knowledge Engineering (SEKE), pages 124-131, San Francisco Bay, California, USA, July 2003.
36. Kendra Cooper, Lirong Dai, Yi Deng, and Jing Dong, Developing a Formal Design Analysis Framework, the Proceedings of International Conference on Software Engineering Research and Practice (SERP), pages 68-73, Las Vegas, Nevada, USA, June 2003.
37. Jing Dong, Representing the Applications and Compositions of Design Pattern Compositions in UML, the Proceedings of the Eighteenth Annual ACM Symposium on Applied Computing (SAC), pages 1092-1098, Melbourne, Florida, USA, March 2003.

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38. Kendra Cooper, Lirong Dai, Yi Deng, and Jing Dong, Towards an Aspect-Oriented Architectural Framework, the Proceedings of the Second International Workshop on Aspect-Oriented Requirements Engineering and Architecture Design (Early Aspects), Boston, USA, March 2003.
39. Jing Dong, Paulo Alencar, and Donald Cowan, Modeling and analysis of design component contracts in logic programming, the Proceedings of the 3rd Workshop on Constraint Logic Programming and Software Engineering (CLPSE), Copenhagen, Denmark, July 2002.
40. Jing Dong, Paulo Alencar, and Donald Cowan, A Behavioral Analysis Approach to Pattern-Based Composition, the Proceedings of the 7th International Conference on Object-Oriented Information Systems (OOIS), pages 340-349, Springer-Verlag, Calgary, Canada, August 2001.
41. Jing Dong, Paulo Alencar, and Donald Cowan, Component Contract Templates - A Rigorous Approach for Component Specification and Composition Verification, the Proceedings of the OOPSLA'00 Workshop on Component Contracts, Minneapolis, USA, October 2000.
42. Jing Dong, Model Checking the Composition of Hypermedia Design Components, the Proceedings of the 10th IBM Center for Advanced Studies Conference (CASCON), pages 51-64, Toronto, Canada, November 2000.
43. Jing Dong, A Logical Framework for Design Composition, the Proceedings of the 22nd IEEE/ACM International Conference on Software Engineering (ICSE), pages 698-700, Limerick, Ireland, June 2000.
44. Jing Dong, Paulo Alencar, and Donald Cowan, Ensuring Structure and Behavior Correctness in Design Composition, the Proceedings of the 7th Annual IEEE International Conference on Engineering of Computer Based Systems (ECBS), pages 279-287, Edinburgh, UK, April 2000.
45. Paulo Alencar, Donald Cowan, Jing Dong, and Carlos Lucena, A Pattern-Based Approach to Structural Design Composition, the Proceedings of the IEEE 23rd Annual International Computer Software & Applications Conference (COMPSAC), pages 160-165, Phoenix USA, October 1999.
46. Jing Dong, Paulo Alencar, and Donald Cowan, Correct Composition of Design Components, the Proceedings of the 4th International Workshop on Component-Oriented Programming (WCOP), in conjunction with ECOOP'99, Lisbon, Portugal, June 1999, appeared as the Lecture Notes in Computer Science, vol. 1743, Springer-Verlag.
47. Jing Dong, Paulo Alencar, and Donald Cowan, A Component Specification Template for COITS-based Software Development, the Proceedings of the International Workshop on

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Ensuring Successful COTS Development, in conjunction with ICSE-21, Los Angeles, USA, May 1999.

48. Paulo Alencar, Donald Cowan, Jing Dong, and Carlos Lucena, A Transformational Approach for Structural Design Assessment and Change, the Proceedings of the ECOOP'98 Workshop on the Techniques, Tools and Formalisms for Capturing and Assessing Architectural Quality in Object-Oriented Software, Brussels, Belgium, July 1998, appeared as the Lecture Notes in Computer Science, vol. 1543, Springer-Verlag.

Other Publications:

49. Jing Dong, Tu Peng, Paulo Alencar, and Donald Cowan, A Formal Framework for Modeling and Analysis of Pattern-Based Design, UTDCS-07-07, Department of Computer Science, University of Texas at Dallas, 2007.
50. Longji Tang, Jing Dong, A Survey of Formal Methods for Software Architecture, UTDCS-38-06, Department of Computer Science, University of Texas at Dallas, Sept. 2006.
51. Jing Dong, Yongtao Sun, OWL-S Ontology Framework Extension for Dynamic Web Service Composition, UTDCS-01-06, Department of Computer Science, University of Texas at Dallas, January 2006.
52. Jing Dong, Paulo Alencar, and Donald Cowan, Automating the Analysis of Design Component Contracts, UTDCS-01-04, Department of Computer Science, University of Texas at Dallas, 2004.
53. Kendra Cooper, Lirong Dai, and Jing Dong, Defining a Process for a Formal Design Analysis Framework, UTDCS-20-03, Department of Computer Science, University of Texas at Dallas, 2003.
54. Jing Dong and Sheng Yang, Visualizing Design Patterns With A UML Profile, UTDCS-11-03, Department of Computer Science, University of Texas at Dallas, 2003.
55. Jing Dong, Design Component Contracts: Modeling and Analysis Pattern-Based Compositions, Ph.D. Thesis, Department of Computer Science, University of Waterloo, 2002.
56. Jing Dong, Paulo Alencar, and Donald Cowan, A Behavioral Analysis Approach to Pattern-Based Composition, CS-2001-18, Department of Computer Science, University of Waterloo, 2001.
57. Daniel M. Berry, Khuzaima Daudjee, Jing Dong, Maria Nelson, and Torsten Nelson, User's Manual as a Requirements Specification, CS-2001-17, Department of Computer Science, University of Waterloo, 2001.

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58. Jing Dong, Paulo Alencar, and Donald Cowan, The Verification of Hypermedia Design Composition, CS-2000-20, *Department of Computer Science, University of Waterloo*, 2000.
 59. Paulo Alencar, Donald Cowan, Jing Dong, and Carlos Lucena, An Evolutionary Approach to Structural Design Composition, CS-99-16, *Department of Computer Science, University of Waterloo*, 1999.
 60. Jing Dong, A Transformational Process-Based Formal Approach to Object-Oriented Design, *M.Math Thesis, Department of Computer Science, University of Waterloo*, 1997.
 61. Paulo Alencar, Donald Cowan, Jing Dong, and Carlos Lucena, A Transformational Process-Based Formal Approach to Object-Oriented Design, CS-97-09, *Department of Computer Science, University of Waterloo*, 1997.
 62. Paulo Alencar, Donald Cowan, Jing Dong, and Carlos Lucena, A Process language Approach for Describing Design Pattern Applications, CS-96-37, *Department of Computer Science, University of Waterloo*, 1996.
- Submitted Papers (Under Evaluation):**
63. Jing Dong, Tu Peng, Paulo Alencar, and Donald Cowan, A Formal Framework for Modeling and Analysis of Pattern-Based Design, submitted to ACM TOSEM for journal publication, 2007.
 64. Jing Dong, Sheng Yang, Yongtao Sun and W. Eric Wong, Design Pattern Evolutions in QVT, submitted to JSS for journal publication, 2007.
 65. Jing Dong, Sheng Yang, and Yongtao Sun, XSLT-Based Evolutions and Analyses of Design Patterns, submitted to SPE for journal publication, 2007.
 66. Jing Dong, Tu Peng, and Zongyan Qiu, Commutability of Design Pattern Instantiation and Integration, submitted to TASE conference publication, 2007.
 67. Jing Dong, Yajing Zhao, and Scott Tilley, A Comparative Study for Design Pattern Discovery, submitted to ICPC conference publication, 2007.
 68. Jing Dong, Yajing Zhao, and W. Eric Wong, An XMI-Based Approach for Design Pattern Recovery, submitted to COMPSAC conference publication, 2007.
 69. Jing Dong, Yajing Zhao, Classification of Design Pattern Properties, submitted to SEKE conference publication, 2007.

Journal and Conference Papers in Preparation:

70. Tu Peng and Jing Dong, Commutability of Design Pattern Instantiation, Integration and Evolution.

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71. Jing Dong and Tu Peng, Model Checking Security Design Pattern Integration.
72. Jing Dong and Yajing Zhao, Design Pattern Detections.
73. Jing Dong and Yongtao Sun, Dynamic Web Service Compositions.

CURRENT AND PAST RESEARCH GRANTS

74. Co-PI, End to End Dependability Assurance for Command and Control Systems, *Department of Defense (DoD) SPAWAR/NISTP (subcontract to Independent Engineering, Inc.)*, \$44,058, May 2005 – May 2006. (PI: I-Ling Yen, Farokh Bastani)
75. PI, Component-Based Approaches to Web-Centric Software Development and Evolution, *Clark Foundation Research Initiation Grants*, \$10,000, Jan. 2003 – Dec. 2003.

OTHER FUNDING

76. PI, *Clark Undergraduate Student Mentorship Grant*, \$1,000, May 2005 – August 2005.
77. PI, *Clark Undergraduate Student Mentorship Grant*, \$1,000, May 2006 – August 2006.

RESEARCH GRANTS SUBMITTED

78. PI, A Formal Approach to Design Pattern Composition, Evolution, Replacement and Visualization, *Submitted to National Science Foundation (NSF) CAREER*, 2006.
79. Co-PI, QoS-Assured Automated Web Service Composition, *Submitted to National Science Foundation (NSF) CCF - COMPUTING PROCESSES & ARTIFACT*, 2006.
80. Senior Personnel, REU Site: Undergraduate Research Training and Experience in Software Engineering and Information Assurance, *Submitted to National Science Foundation (NSF)*, 2006.
81. PI, Towards Pattern-Based Design Composition, Evolution, Replacement and Visualization, *Submitted to National Science Foundation (NSF) CCF - COMPUTING PROCESSES & ARTIFACT*, 2005.
82. Senior Personnel, REU Site: Undergraduate Research Training and Experience in Software Engineering and Information Assurance, *Submitted to National Science Foundation (NSF)*, 2005.
83. PI, Pattern-Based Software Compositions at Design Level, *pre-proposal submitted to Advanced Research Program (ARP)*, \$100,000, 2005.

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84. PI, Towards Reasoning and Visualizing Design Components. Submitted to National Science Foundation (NSF) CAREER, 2004.
85. PI, Secure Access Control to Web Service Applications. Submitted to AT&T Foundation, 2004.
86. PI, Towards Component-Based Web Service Development. pre-proposal submitted to Advanced Technology Program (ATP), \$96,000, June 2003.
87. PI, A Component-Based Test-Bed For The Development Of Space Protocol Suite. pre-proposal submitted to Advanced Technology Program (ATP), \$110,000, co-PI Ruhai Wang, June 2003.
88. PI, A Formal Framework for Component-Based Software Design. pre-proposal submitted to Advanced Research Program (ARP), \$96,000, June 2003 (Subsequently cancelled by Texas government).
89. Co-PI, Security Analysis and Information Assurance Laboratory. submitted for PUF funds, \$2 million, PI: E.D. Harris, January 2004.

RESEARCH GRANTS IN PREPARATION

90. PI, Towards Trusted Composition in Software Design. To be submitted to National Science Foundation (NSF), 2006.

PRESENTATIONS AND TALKS

(Entries duplicate those in section for refereed workshops, symposia, and conferences)

91. QVT Based Model Transformation for Design Pattern Evolutions. the Proceedings of the Tenth IASTED International Conference on Internet and Multimedia Systems and Applications (IMS4), USA, August 2006.
92. OWL-S Ontology Framework Extension for Dynamic Web Service Composition. the Proceedings of the International Conference on Software Engineering and Knowledge Engineering (SEKE), San Francisco Bay, California, USA, July 2006.
93. A Model Transformation Approach for Design Pattern Evolutions. the Proceedings of the Annual IEEE International Conference on Engineering of Computer Based Systems (ECBS), Germany, March 2006.
94. Teaching Experiences with UML at The University of Texas at Dallas. the Proceedings of the ACM / IEEE 8th International Conference on Model Driven Engineering Languages and Systems Educator's Symposium, Montego Bay, Jamaica, October 2005
95. A COTS Architectural Component Specification Stencil for Selection and Reasoning. the Proceedings of the Second International Workshop on Models and Processes for the

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- Evaluation of off-the-shelf Components (MPEC), in conjunction with ICSE, USA, May 2005.
96. Event-Based Blackboard Architecture for Multi-Agent Systems. the Proceedings of the IEEE International Conference on Information Technology: Coding and Computing (ITCC), USA, April 2005.
97. VisDP: A Web Service for Visualizing Design Patterns on Demand. the Proceedings of the IEEE International Conference on Information Technology: Coding and Computing (ITCC), USA, April 2005.
98. Towards Trusted Composition in Software Design. the Proceedings of the IEEE International Symposium on High Assurance Systems Engineering (HASE), Tampa, Florida, USA, March 2004.
99. Visualizing Design Patterns With A UML Profile. the Proceedings of the IEEE Symposium on Visual/Multimedia Languages (VL), Auckland, New Zealand, October 2003.
100. A Formal Framework for Design Component Contracts. the Proceedings of the IEEE International Conference on Information Reuse and Integration (IRI), Las Vegas, US, October 2003.
101. Towards A Formal Design Component Framework. the Proceedings of the International Workshop on Software Development Methodologies of Distributed Systems, Amsterdam, The Netherlands, Sept., 2003
102. Extending UML To Visualize Design Patterns In Class Diagrams. the Proceedings of the Fifteenth International Conference on Software Engineering and Knowledge Engineering (SEKE), San Francisco Bay, California, USA, July 2003.
103. Developing a Formal Design Analysis Framework. the Proceedings of International Conference on Software Engineering Research and Practice (SERP), Las Vegas, Nevada, USA, June 2003.
104. Representing the Applications and Compositions of Design Pattern Compositions in UML. the Proceedings of the Eighteenth Annual ACM Symposium on Applied Computing (SAC), Melbourne, Florida, USA, March 2003.
105. A Behavioral Analysis Approach to Pattern-Based Composition. the Proceedings of the 7th International Conference on Object-Oriented Information Systems (OOIS), Calgary, Canada, August 2001.
106. Model Checking the Composition of Hypermedia Design Components. the 10th IBM Center for Advanced Studies Conference (CASCON), Toronto, Canada, November 2000.

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107. A Logical Framework for Design Composition, the Doctoral Symposium of the 22nd International Conference on Software Engineering, Limerick, Ireland, June 2000.
108. Ensuring Structure and Behavior Correctness in Design Composition, the 7th Annual IEEE International Conference and Workshop on Engineering of Computer Based Systems (ECBS), Edinburgh UK, April 2000.
109. A Pattern-Based Approach to Structural Design Composition, the IEEE 23rd Annual International Computer Software & Applications Conference (COMPSAC), Phoenix USA, October 1999.
110. Correct Composition of Design Components, the 4th International Workshop on Component-Oriented Programming (WCOP), Lisbon, Portugal, June 1999.
- GUEST LECTURES**
111. Design Patterns, *Intervoice Technical Summit, Texas, US, December 2003.*
112. An Introduction to Design Patterns, *Intelliatics Inc., Ontario, Canada, December 2001.*

CURRENT GRADUATE STUDENTS

- Yonggao Sun (Ph.D. Candidate, Passed all qualifying exams), 2 journal, 3 conferences
- Yajing Zhao (Ph.D.), Passed 4 qualifying exams), 2 conferences
- Tu Peng (Ph.D.), Passed 3 Margined 1 qualifying exams)
- Longji Tang (Ph.D.), Passed 2 Margined 1 qualifying exams)

PAST GRADUATE STUDENTS

- Sheng Yang (Ph.D., Nov. 2006), 2 journal/11 conference publications, 3 submitted journals
Dissertation: A MODEL-DRIVEN APPROACH TO DESIGN PATTERN
VISUALIZATION AND EVOLUTIONS
- Dushyant S. Lad (Master, Nov. 2006, currently work for Keste), 2 conference publications
Thesis: A XMI-BASED APPROACH FOR DISCOVERING DESIGN PATTERNS
WITH MATRIX
- Rucha Khisti (Master, Dec. 2004, currently work for Cisco), 1 conference publication
Thesis: COMPONENT FRAMEWORK FOR RESOURCE MANAGEMENT SYSTEMS

PAST POST-DOC FELLOW

- Jun Kong, Spring 2006

PH.D THESIS COMMITTEE MEMBERS

- SuTe Lei (Ph.D.)

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- Hui Ma (Ph.D.)
- Sam Supakkul (Ph.D.)
- Qian Wang (Ph.D.)
- Renee Steiner (Ph.D., Graduated in Fall 2006)
- Guanglei Song (Ph.D., Graduated in Summer 2006)
- Jian Liu (Ph.D., Graduated in Summer 2006)
- Sung Kim (Ph.D., Graduated in Summer 2004)
- Jian Liu (Ph.D. Qualifying Exams Committee Member, Fall 2002)

MASTER THESIS COMMITTEE MEMBERS

- Aneya A. Velankar (Master, Graduated in Fall 2006)
- Yiyang Lee (Master, Graduated in Fall 2006)
- Santhoshi Smitha Thota (Master, Graduated in Fall 2005)
- Shilpa Jain (Master, Graduated in Spring 2005)
- Jyothi Katragadda (Master, Graduated in Fall 2004)
- Tropa Chowdhury (Master, Graduated in Fall 2004)
- Pallavi Sreeram (Master, Graduated in Fall 2003)
- Faisal Shafique (Master, Graduated in Fall 2002)
- Anna Yi (Master, Graduated in Fall 2002)

INDEPENDENT STUDY STUDENTS

- Spring 2003: Pradeep Gundlaga, Ahmed Hakimi
- Summer 2003: Niluka Bamunarachchi, Hongyan Li, Qun Li, Guang Lin, Bing Wang, Kelang Xu.
- Fall 2003: Yimei Gong, Bo Huang, Jie Huang, Yi Lu, Ying Wang, Shuangluo Xia, Hongyan Yu, Junyu Zhang, Rucha Khisti.
- Spring 2004: Shanguo Chen, Weidong Geng, Haiyin Jiang, Vikram Parvathaneni, Xiao Shuang Zhang, Hong Zou.
- Summer 2004: Shanguo Chen, Jianghong Li.
- Fall 2004: Tao Zhang, Srinivasan Shekhar.
- Spring 2005: David Lovell, Jacob Orshalick
- Summer 2005: Lakshmi Venkateshkumar, Xiaofang Xu
- Fall 2005: Dushyant Sanmukh Lad, Ynanlu Jiang
- Spring 2006: Heena More, Ashish Narain, Avinash Raghavendra, Xuan Song
- Summer 2006: Praveen Arunugam, Kunal Buddhdeo, Jean Johnson, Pradyumn Patel, Longji Tang, Shradha Walgude, Yajing Zhao
- Fall 2006: Shilpa Maddi, Kanimozhi-Selvan Manikandasamy, Lakshmi Ramasamy, Yajing Zhao
- Spring 2007: Ali Hashi, Naga S Koneru, Nikita Patel, Pradyumn M Patel, Tu Peng, Geetanjali Sharma,

PAST/PRESENT COLLABORATORS

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- Dr. Farokh Bastani, Dr. Lawrence Chung, Dr. Kendra Cooper, Dr. Gopal Gupta, Dr. Eric Wong, Dr. Kang Zhang (UTD, USA)
- Dr. Joanne Atlee, Dr. Paulo Alencar, Dr. Dan Berry, Dr. Don Cowan (Waterloo, Canada)
- Dr. Yi Deng (Florida International University)
- Dr. Scott Tilley (Florida Institute of Technology)
- Dr. Liang-Jie Zhang (IBM T.J. Watson Research Center)
- Dr. Jun-Jang Jeng (IBM T.J. Watson Research Center)
- Dr. Daniel German (Univ. of Victoria, Canada)
- Prof. Zongyan Qiu (Peking Univ., China)
- Prof. Zhiying Zhou (Tsinghua Univ., China)
- Dr. Weiye Zhang, Mr. Junfeng Luo, Mr. Ian Jose (Microsoft Co., USA)
- Mr. Wei Shaw (Rational Co., USA)
- Ms. Maggie Cai (Ariba Co., USA)
- Ms. Yan Wang (IBM, Canada)
- Dr. Kurt Lichtner (Sybase Co., Canada)

PROFESSIONAL ACTIVITIES

- Program Co-Chair: 10th IEEE International Symposium on High Assurance Systems Engineering (HASE), Florida, USA, 2007
- Program Co-Chair: International Workshop on Software Development Methodologies of Distributed Systems, WuXi, China, June 2005
- Publicity Chair: The Twelfth International Conference on Distributed Multimedia Systems (DMS), USA, Sept. 2006
- Publicity Chair: International Conference on Visual Languages and Computing (VLC), USA, Sept. 2006
- Finance Chair: IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), Dallas, Texas, USA, September 2005.
- Publicity Chair: International Conference on Visual Languages and Computing (VLC), San Francisco Bay, CA, USA, Sept. 2004
- Finance Chair: 8th IEEE International Symposium on High Assurance Systems Engineering (HASE), Tampa, Florida, USA, March 2004
- Program Committee Member:
 - Third IEEE International Symposium on Service-Oriented System Engineering (SOSE), Hong Kong, October 2007.
 - 19th International Conference on Software Engineering and Knowledge Engineering (SEKE), Boston, July 2007.
 - 6th International Workshop on System/Software Architectures (IWSSA), USA, June 2007
 - International Conference on Software and Data Technologies (ICSOFT), Spain, July 2007
 - The Second International Conference on Internet Monitoring and Protection (ICIMP), USA, July 2007
 - 8th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD), China, July 2007.

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- International Conference on Software Engineering Theory and Practice (SETP), FL, USA, 2007
- 8th International Conference on Internet Computing (ICOMP07), June 2007
- International Workshop on Visual Languages and Computing, USA, 2007
- Visual Interactions in Software Technology mini-track, Hawaii International Conference on System Sciences (HICSS), 2007
- 18th International Conference on Software Engineering and Knowledge Engineering (SEKE), San Francisco Bay, July 2006
- International Conference on Software Engineering Research and Practice (SERP), USA, June 2006.
- 7th International Conference on Internet Computing (ICOMP06), June 2006
- International Conference on Visual Languages and Computing (VLC), USA, Sept. 2006
- The Third International Workshop on Software Development Methodologies of Distributed Systems, Shanghai, China, May 2006
- International Conference on Visual Languages and Computing (VLC), Banff, Alberta, Canada, Sept. 2005
- International Conference on Software Engineering Research and Practice (SERP), USA, June 2005.
- International Conference on Internet Computing (IC), USA, June 2005.
- International Conference on Visual Languages and Computing (VLC), San Francisco Bay, CA, USA, Sept. 2004
- International Conference on Software Engineering Research and Practice (SERP), Las Vegas, Nevada, USA, June 2004.
- International Conference on Internet Computing (IC), Las Vegas, Nevada, USA, June 2004.
- 8th IEEE International Symposium on High Assurance Systems Engineering (HASE), Tampa, Florida, USA, March 2004
- The International Workshop on Software Development Methodologies of Distributed Systems, Amsterdam, The Netherlands, Sept., 2003
- Editor: Journal of Software Engineering, 2006 - now
- Reviewing Activities: Reviewed articles for:
 - IEEE Transactions on Software Engineering (TSE), 2006
 - IEEE Proceedings Software, 2006
 - Knowledge and Information Systems: An International Journal (KAIS), Springer, 2006
 - International Journal on Computer Standards & Interfaces, Elsevier-Science, 2006
 - Science, 2006
 - Journal of Software, 2006
 - IEEE Transactions on Software Engineering (TSE), 2005
 - IEEE Proceedings Software, 2005
 - Information Processing Letters (IPL), Elsevier-Science, 2005
 - Encyclopedia of Computer Science and Engineering, 2005
 - ETRI Journal, 2005
 - The Ninth IASTED International Conference on Software Engineering and Applications (SEA), 2005
 - The Ninth IASTED International Conference on INTERNET & MULTIMEDIA SYSTEMS & APPLICATIONS, 2005

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- International Conference on Distributed Computing and Internet Technology, 2005
- IEEE Transactions on Software Engineering (TSE), 2004
- Knowledge and Information Systems: An International Journal (KAIS), 2004
- ACM Symposium on Applied Computing (SAC), 2005
- IEEE 28th Annual International Computer Software & Applications Conference (COMPSAC) 2004
- 14th IEEE International Symposium on Software Reliability Engineering (ISSRE) 2003
- Third International Conference on Quality Software, Dallas, Texas, Nov., 2003
- International Journal of Software and Systems Modeling, Special Issue on Modeling of Object-Oriented Information Systems, 2003
- International Journal of Software-and Systems Modeling, Special Issue on Graph Transformations and Visual Modeling Techniques, 2003
- International Journal of Parallel and Distributed System and Networks, 2003
- Annals of Software Engineering – An International Journal, 2002.
- The IBM Center for Advanced Studies Conference (CASCON), 2001.
- Session Chairs:
 - The Tenth IASTED International Conference on INTERNET & MULTIMEDIA SYSTEMS & APPLICATIONS, 2006
 - 18th International Conference on Software Engineering and Knowledge Engineering (SEKE), San Francisco Bay, July 2006
 - The 2005 IEEE International Conference on Services Computing (SCC 2005), Orlando, Florida, USA, July 2005.
 - 8th IEEE International Symposium on High Assurance Systems Engineering (HASE), Tampa, Florida, USA, March 2004
 - The IEEE International Conference on Information Reuse and Integration (IRI), Las Vegas, US, October 2003
 - The Fifteenth International Conference on Software Engineering and Knowledge Engineering (SEKE), July 2003
- Participation
 - Program committee meeting of the 8th IEEE International Symposium on High Assurance Systems Engineering (HASE), Washington DC, USA, December 2003
 - NSF Career Development workshop for new faculty, Bozeman, MT, Jan. 2003
 - Ph.D. Qualifying Exam Committee
 - Chair of CS6362 Software Architecture and Design, Fall 2006
 - CS6388 Software Project Planning and Management, Fall 2006
 - Chair of CS6362 Software Architecture and Design, Spring 2006
 - CS6388 Software Project Planning and Management, Spring 2006
 - Chair of CS6362 Software Architecture and Design, Fall 2005
 - CS6388 Software Project Planning and Management, Fall 2005
 - CS6362 Software Architecture and Design, Spring 2005
 - CS6388 Software Project Planning and Management, Spring 2005
 - Chair of CS6362 Software Architecture and Design, Fall 2004
 - Chair of CS6362 Software Architecture and Design, Spring 2004
 - Chair of CS6362 Software Architecture and Design, Fall 2003
 - Chair of CS6362 Software Architecture and Design, Spring 2003
 - CS6362 Software Architecture and Design, Fall 2002

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- CS6388 Software Project Planning and Management, Fall 2004
- CS6388 Software Project Planning and Management, Fall 2002
- CS Department Equipment Committee, Fall 2003 – Summer 2004
- Chair of CS Department Library Committee, Fall 2004 – now
- External Chair of Ph.D. defense committee, 2005

PROFESSIONAL MEMBERSHIPS

- Association for Computing Machinery (ACM)
- ACM SIG Software Engineering (SIGSOFT)
- Institute for Electrical and Electronic Engineers (IEEE)
- IEEE Computer Society (IEEE CS)
- IEE
- Consortium for Software Engineering Research (CSER)
- Center for Information Technology Ontario (CITO)
- Canadian Mathematical Society (CMS)
- International Society for Professionals in e-Commerce (ISPEC)

TRAINING

- Nov. 2001 – April 2002, Certificate in University Teaching, University of Waterloo.

HONORS AND AWARDS

- Mar. 2004, Outstanding Service Award, 8th IEEE International Symposium on High Assurance Systems Engineering (HASE), Tampa, Florida, USA
- Jan. 2000 – Apr. 2002, IBM CAS Fellowship (\$25000 per year)
- Nov. 2000, ACM Student Travel Scholarship for attending FSE00 (\$1000+Free Registration)
- Sept. 1997 – Aug. 2000, CITO Scholarship (\$4000 per year for 3 years)
- Sept. 1996 – Aug. 1997, ITRC Scholarship (\$3000)
- Sept. 1995 – Aug. 1996, International Student Scholarship (\$13260)

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Curriculum Vitae

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I. BIOGRAPHICAL DATA

Education

- Ph.D. in Mathematics (research area in Theoretical Computer Science), University of California at Santa Barbara, 1985; Advisor Ronald V. Book
- M.S. in Operations Research, Chinese Academy of Sciences, 1982; Advisor Minyi Yue

Professional Experience

- Professor, Department of Computer Science, University of Texas at Dallas, since September, 2005.
- Program Director for CISE/CCF, National Science Foundation, USA, 2002-2005.
- Professor, Department of Computer Science, University of Minnesota, since 1995-2005.
- Associate Professor, Department of Computer Science, University of Minnesota, 1991-1995.
- Visiting Research Professor, Department of Computer Science, City University of Hong Kong, 1998-1999.
- Postdoctor Fellow of Robert T. J. and the Center for Discrete Mathematics and Theoretical Computer Science, at Department of Computer Science, Princeton University, 1990-1991.
- Research Professor, Institute of Applied Mathematics, Chinese Academy of Sciences, 1987-2001.
- Assistant Professor, Department of Mathematics, Massachusetts Institute of Technology, 1986-1987.
- Postdoctor Fellow in computational complexity program at Mathematical Sciences Research Institute, Berkeley, California, 1985-1986.

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- Research Assistant Professor, Institute of Applied Mathematics, Chinese Academy of Sciences, 1981-1982.

Honor and Awards

- 2003 Received the Best Paper Award from the 22nd IEEE International Performance, Computing, and Communication Conference at Phoenix, Arizona, USA, April 9-11.
- 1998 Received CSTS Prize from INFORMS (a merge of American Operations Research Society and Institute of Management Science) for research excellence in the interface between Operations Research and Computer Science.
- 1996 Received the 2nd Class National Natural Science Prize in China.
- 1996 Fellow of the Center for Management of Operations and Logistics, University of Texas at Austin.
- 1993 Received the 1st Class Natural Science Prize from Chinese Academy of Sciences.
- 1992 Received the National Young Scientist Prize from China.
- 1992 The proof of Gilbert-Pollak conjecture was selected by 1992 Year Book of Encyclopedia, Britannica, as the first one among six outstanding achievements in mathematics in 1991.
- 1992 Received \$500 personal award from Professor Ronald L. Graham, the President of American Mathematics Society, for proving the Steiner ratio conjecture of Gilbert and Pollak.
- 1990-1991 The proof of Gilbert-Pollak conjecture was reported in *New York Time* on 10/30/1990, *Science* (1990, pp.1081-1082), *Science News* (12/22-29/1990, pp.389), *SIAM News* Vol 24 No 1 (1991), *New Scientists* (April 1991, pp.22), and *New Scientists* (November 1991, pp.26-29).
- 1989 Received the 1st Class Young Scientist Prize from Chinese Academy of Sciences, Beijing, China.
- 1988 Received the 3rd Class National Natural Science Prize in China.
- 1983 Received Raymond L. Wilder Fund Award in recognition of outstanding achievement as a graduate student at the University of California at Santa Barbara.

Editorial Service

- Editor-in-Chief, *Journal of Combinatorial Optimization*, Kluwer Academic Publisher since 1997.
- Editorial Board Member, *Theoretical Computer Science*, Elsevier since 1998.

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- Editorial Board Member, *Internet Mathematics*, A.K. Peters LTD since 2003.
- Editorial Board Member, *Graphs and Combinatorics* Springer-Verlag since 1996.
- Editorial Board Member, *Annual Combinatorics*, Springer Verlag, during 1997-2002.
- Editorial Board Member, *Journal of Global Optimization*, Kluwer Academic Publisher since 1995
- Editorial Board Member, *Asian Journal of Mathematics*, since 1997.
- Editorial Board Member, *Pacific Journal of Operations Research*, since 2003.
- Editorial Board Member, *Sci. China*, since 2003.
- Editorial Board Member, *Journal of Information Science and Engineering*, Academia Sinica, Taipei, since 2003.
- Editorial Board Member, *Journal of Computer Science and Technology*, Science Publisher, Beijing, since 2003.
- Editor-in-Chief, *Book Series of Combinatorial Optimization*, Kluwer Academic Publisher since 1999.
- Editor-in-Chief, *Book Series on Networks Theory and Applications*, Kluwer Academic Publisher, since 2000.
- Editorial Board Member, *Book Series on Nonconvex Optimization and Its Applications*, Kluwer Academic Publishers, since 1996.

II. CONTRIBUTIONS TO RESEARCH

Current Research Interests

Design and Analysis of Approximation Algorithms for Combinatorial Optimization problems with applications in Computational Biology, computer and communication networks (especially, Switching Networks, Optical Networks, and Wireless Networks), and Network Security.

Refereed Journal Papers

1. Xiuzhen Cheng, Ding-Zhu Du, Lusheng Wang and Baogang Xu, Relay sensor placement in wireless sensor networks, *Wireless Networks*, (2007)
2. My T. Thai, Feng Wang, Dan Liu, Shiwei Zhu, and Ding-Zhu Du, Connected dominating sets in wireless networks with different transmission ranges *IEEE Transactions on Mobile Computing*, accepted
3. Feng Wang, My T. Thai, and Ding-Zhu Du, 2-Connected virtual backbone in wireless networks *IEEE Transactions on Wireless Communications*, accepted

4. My T. Thai, Zhipeng Cai, and Ding-Zhu Du, Genetic Networks: Processing Data, Regulatory Network Modeling, and their Analysis, *Optimization Methods and Software*, 22 (2007) 169-186.
5. Yingshu Li, My T. Thai, Feng Wang and Ding-Zhu Du, On the construction of a strongly connected broadcast arborescence with bounded transmission delay, *IEEE Transactions on Mobile Computing*, 5:10 (2006) 1460-1470.
6. Ding-Zhu Du Frank K. Hwang, Weili Wu and Ty Znati, A new construction of transversal designs *Journal of Computational Biology*, 13 (2006) 990-995.
7. Scott C.-H. Huang, Maggie X. Cheng and Ding-Zhu Du, GeoSENS: geo-based sensor network secure communication protocol *Computer Communication* 29:4 (2006) 456-461.
8. My T. Thai and Ding-Zhu Du, Connected dominating sets in disk graphs with bidirectional links, *IEEE Communications Letters* 10 : 3 (2006).
9. My T. Thai, Yingshu Li and Ding-Zhu Du, A combination of wireless multicast advantage and hitch-hiking *IEEE Communications Letters* 9: 12 (2005) 1037-1039.
10. Mihaela Cardei and Ding-Zhu Du, Improving wireless sensor network lifetime through power aware organization *ACM Wireless Networks* 11: 3 (2005) 333-340.
11. Maggie Xiaoyan Cheng, David H.-C. Du, Ding-Zhu Du: Location management in mobile ad hoc wireless networks using quorums and clusters, *Wireless Communications and Mobile Computing* (2005) 793-803.
12. Yingshu Li, My T. Thai, Feng Wang, Chih-Wei Yi, Pengjun Wan and Ding-Zhu Du, On greedy construction of connected dominating sets in wireless networks *Wireless Communications and Mobile Computing* 5 : 8 (2005) 927-932.
13. Maggie Xiaoyan Cheng, Mihaela Cardei, Jianhua Sun, Xiaochun Cheng, Lusheng Wang, Yinfeng Xu, Ding-Zhu Du: Topology control of ad hoc networks for energy efficiency, *IEEE Trans. Computers* 53:12(2004) 1629-1635.
14. X. Jia, D. Li, X.-D. Hu, W. Wu, D.-Z. Du: Placement of Web-Server Proxies with Consideration of Read and Update Operations on the Internet, *Comput. J.* 46:4 (2003) 378-390.
15. X. Jia, D.-Z. Du, X.-D. Hu, H. Hwang and D. Li: On the Optimal Placement of Wavelength Converters in WDM Networks, *Computer Communication*, 26:9 (2003) 986-995.
16. H. Qiao, L. Kang, M. Cardei, D.-Z. Du: Paired-domination of trees, *Journal of Global Optimization*, 25 (2003) 43-54.
17. L. Kang, H. Qiao, E. Shan, D.-Z. Du: Lower bounds on the minus domination and k-subdomination numbers, *Theor. Comput. Sci.* 296 (2003) 89-98.

18. X. Cheng, X. Huang, D. Li, W. Wu, and D.-Z. Du: A polynomial-time approximation scheme for minimum connected dominating set in ad hoc wireless networks, *Networks* 42 (2003) 202-208.
19. Y. Jung, H. Park, D.-Z. Du, and B.L. Drake: A decision criterion for the optimal number of clusters in hierarchical clustering, *Journal of Global Optimization* 25 (2003) 91-111.
20. M. Cardai, D. MacCallum, X. Cheng, M. Min, X. Jia, D. Li, D.-Z. Du: Wireless Sensor Networks with Energy Efficient Organization, *Journal of Interconnection Networks* 3 (2002) 213-229.
21. S. Gao, D.-Z. Du, X.-D. Hu, and X. Jia: Rivest-Vuillemin conjecture is true for monotone Boolean functions with twelve variable, *Discrete Applied Mathematics* 253 (2002) 19-34.
22. D.-Z. Du, D. F. Hsu, H.Q. Ngo, and G.W. Peck: On connectivity of consecutive- d digraphs, Kletman and combinatorics: a celebration (Cambridge, MA, 1999). *Discrete Math.* 257 (2002), no. 2-3, 371-384.
23. H.Q. Ngo, D.-Z. Du, and R.L.L. Graham: New bounds on a hypercube coloring problem. *Inform. Process. Lett.* 84 (2002), no. 5, 265-269.
24. D.-Z. Du, F.K. Hwang, X. Jia, and H.Q. Ngo: Optimal consecutive- k -out-of- n : G cycle for $n \leq 2k + 1$. *SIAM J. Discrete Math.* 15 (2002), no. 3, 305-316
25. D.-Z. Du and H.Q. Ngo: An extension of DHH-Erds conjecture on cycle-plus-triangle graphs. *Taiwanese J. Math.* 6 (2002), no. 2, 261-267
26. H.Q. Ngo and D.-Z. Du: New construction of non-adaptive and error-tolerance pooling designs, *Discrete Mathematics* 243 (2002) 161-170.
27. L. Wang and D.-Z. Du: Approximations for bottleneck Steiner trees, *Algorithmica* 32 (2002) 554-561.
28. X. Hu, X. Jia, D.-Z. Du, H. Huang and D. Li: Placement of data replicas for optimal data availability in ring networks, *Journal of Parallel and Distributed Computing*, 61 (2001) 1412-1424.
29. G.L. Xue, G.-H. Lin, and D.-Z. Du: Grade of service Steiner trees in the Euclidean plane, *Algorithmica* 31 (2001) 479-500.
30. H.-L. Fu, C.-L. Shiu, X. Cheng, D.-Z. Du, and J.M. Kim: A quadratic integer programming with application in chaotic mappings of complete multipartite graphs, *Journal of Optimization Theory and Applications* 110 (2001) 545-556.
31. X.-H. Jia, D.-Z. Du, X.-D. Hu: Integrated algorithms for delay bounded multicast routing and wavelength assignment in all optical networks *Computer Communications* 24 (2001) 1390-1399.
32. L. Ruan, D.-Z. Du, X. Hu, X. Jian, D. Li, and Z. Sun: Converter placement supporting broadcast in WDM networks, *IEEE Transactions on Computers* 50 (2001) 750-758.
33. X.-D. Hu, X. Jia, D.-Z. Du, and F.K. Hwang: Monotone routine in rearrangeable Multirate Clos networks, *Journal of Parallel and Distributed Systems*. 61 (9) (2001) 1382-1388.
34. D.S. Kim and D.-Z. Du: Multirate multicast Clos networks, *Proceedings of 4th COCOON*, August 12-14, 1998. Also, in *Theoretical Computer Science* 261 (2001) 241-251.
35. X. Jia, D.-Z. Du, X. Hu, M. Lee, and J. Gu: Optimization of wavelength assignment for QoS multicast in WDM networks, *IEEE Transactions on Communications* 49 (2001) 341-350.
36. D.-Z. Du, F.K. Hwang, Y. Jung, and H. Ngo: Optimal consecutive- k -out-of- $(2k + 1)$: G cycle, *Journal of Global Optimization* 19 (2001) 51-60.
37. D. Chen, D.-Z. Du, X. Hu, G.-H. Lin, L. Wang, and G. Xue: Approximations for Steiner trees with minimum number of Steiner points, *Journal of Global Optimization* 18 (2000) 17-33.
38. G.-H. Lin, D.S. Kim, and D.-Z. Du: Strictly nonblocking multirate Clos networks, *Information* 3:3 (2000). Also in *Proc. of 10th International Conference on Parallel and Distributed Computing and Systems*, Las Vegas, Nevada, October 1998.
39. D.S. Kim and D.-Z. Du: Performance of Split Routing Algorithms for Three-Stage Multicast Networks, *IEEE-ACM Transactions on Networking* 8:4 (2000) 526-534.
40. D. Kim, D.-Z. Du, and P.M. Pardalos, A coloring problem in n -cube, *Discrete Applied Mathematics* 103 (2000) 307-311.
41. S. Gao, W. Wu, D.-Z. Du, and X. Hu, Rivest-Vuillemin conjecture on monotone Boolean functions is true for ten variables, *Journal of Complexity* 15 (1999) 526-536.
42. F. Cao, D.-Z. Du, F.D. Hsu, S.-H. Teng: Fault tolerance properties of pyramid networks *IEEE Trans. Comput* 48 (1999) 88-93.
43. J. Gu, Q. Gu, and D.-Z. Du: On optimizing the satisfiability (SAT) problem, *Journal of Computer Science and Technology*, 14:1 (1999) 1-17.
44. F. Cao, D.-Z. Du, S. Han, D. Kim, and T. Yu: Line digraph iterations and diameter vulnerability, *Taiwanese Journal of Mathematics* 3 (1999) 281-290.
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53. D.-Z. Du, B. Gao, and W. Wu: A special case for subset interconnection designs, *Discrete Applied Mathematics* 78 (1997) 51-60.
54. A. Borchers and D.-Z. Du: The k -Steiner ratio in graphs, *Proceedings of 27th ACM Symposium on Theory of Computing*, 1995. Also in *SIAM Journal of Computing* 26 (1997) 857-869.
55. P.-J. Wan, D.-Z. Du, and R.L. Graham: On the Steiner ratio in dual normed plane, *Discrete Mathematics* 171 (1997) 261-275.
56. P.-J. Wan and D.-Z. Du: An $(\log_2 3 + 1/2)$ -competitive algorithm for the counterfeit coin problem, *Discrete Mathematics* 163 (1997) 173-200.
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58. D.-Z. Du, D.F. Hsu, and Y.D. Lyuu: On the diameter vulnerability of Kautz digraphs, *Discrete Mathematics* 151 (1996) 81-85.
59. J. Gu, Q.-P. Gu, and D.-Z. Du: Convergence properties of optimization algorithms for the SAT problem, *IEEE Transactions on Computers* Vol. 45 No.2 (1996) 209-219.
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72. B.N. Khoury, P.M. Pardalos, and D.-Z. Du, A test problem generator for the Steiner problem in graphs, *ACM Transaction on Mathematical Software*, Vol. 19, No. 4 (1993) 509-522.
73. D.-Z. Du and F.K. Hwang: Competitive group testing, *Discrete Applied Mathematics*, 45 (1993) 221-232. (Also in L.A. McGeoch and D.D. Sleator (eds.), *On-Line Algorithm*, (AMS and ACM, 1991) 125-134.)
74. D.-Z. Du, D.F. Hsu and G.W. Peck: Connectivity of consecutive- d digraphs, *Discrete Applied Mathematics* 37-38 (1992) 169-178.
75. D.-Z. Du, F.K. Hwang: Reducing the Steiner Problem in a normed space with a d -dimensional polytope as its unit sphere, *SIAM J. of Computing* 21 (1992) 1001-1007.
76. D.-Z. Du and K.-I. Ko: A note on best fractions of a computable real number, *J. of Complexity* 8 (1992) 216-229.

77. T. Jiang, M. Li, and D.-Z. Du: A note on shortest superstrings with flipping, *Information Processing Letters*, 44 (1992) 195-199.
78. Z.-C. Liu and D.-Z. Du: On Steiner minimal trees with L_p -distance, *Algorithmica*, 7 (1992) 179-191.
79. D.-Z. Du and F.K. Hwang: Gilbert-Pollak conjecture on Steiner ratio is true, *Proceedings of National Academy of Sciences U.S.A.*, 87 (1990) 9464-9466. (Also in *Proceedings of 31st FOCS*, 1990, pp76-85 and in *Algorithmica* 7 (1992) 121-135.)
80. D.-Z. Du and D.F. Hsu: Partitionable starters for twin prime power type, *Discrete Mathematics*, 87 (1991) 23-28.
81. D.-Z. Du and X.-F. Du: A convergent reduced gradient algorithm without using special pivot, *Mathematicae Numerica Sinica*, 2 (1991) 204-208.
82. D.-Z. Du, D.F. Hsu, F.K. Hwang and X. Zhang: The hamiltonian property of generalized de Bruijn digraphs, *J. Combinatorial Theory (B)*, 52:1 (1991) 1-8.
83. D.-Z. Du and Y.-J. Zhang: On better heuristic for Steiner minimum trees, *Mathematical Programming, Series B* 57 (1992) 193-202. (Also in *Proceedings of 32nd FOCS*, 1991.)
84. D.-Z. Du and X.-F. Du: A special case of valve-placement problem, *Acta Mathematicae Applicatae Sinica*, 4 (1991).
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92. D.-Z. Du, D.F. Hsu, Q. Li and J. Xu: A combinatorial problem related to distributed loop networks, *Networks* 20 (1990) 173-180.

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109. D.-Z. Du and F.K. Hwang: Reliabilities of consecutive-2 graphs, *Probabilities in Industry and Information Theory* 1 (1987) 293-298.
110. D.-Z. Du: Remarks on Rosen's gradient projection method, *Acta Mathematicae Applicatae Sinica, English Series* 3 (1987) 270-279.

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122. D.-Z. Du and F.K. Hwang: Optimal consecutive-2-out-of-n systems, *Mathematics of Operations Research* 11 (1986) 187-191.
123. Du Dingzhu: The changing of point-to-set maps and families of point-to-set maps for continuity, *Acta Mathematicae Applicatae Sinica* 8:2 (1985) 142-150 (in Chinese).
124. D.-Z. Du, F.K. Hwang and E.Y. Yao: Steiner ratio conjecture is true for five points, *Journal of Combinatorial Theory, Series A* 38 (1985) 230-240.
125. D.-Z. Du, F.K. Hwang and S.C. Chao: Steiner minimal trees for points on a circle, *Proceedings of American Mathematical Society* 95 (1985) 613-618.
126. D.-Z. Du, D.F. Hsu and F.K. Hwang: Doubly-linked ring networks, *IEEE Transactions on Computers* C-34 (1985) 853-855.
127. D.-Z. Du and F.K. Hwang: Optimal consecutive-2 systems of lines and cycles, *Networks* 15 (1985) 439-447.

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128. D.-Z. Du: A family of gradient projection algorithms, *Acta Mathematicae Applicatae Sinica, English Series* 2 (1985) 1-13.
129. Du Dingzhu: A gradient projection algorithm for convex programming with nonlinear constraints, *Acta Mathematicae Applicatae Sinica* 8 (1985) 7-16 (in Chinese).
130. D.-Z. Du and F.K. Hwang: A multiplication theorem for balanced Howell rotations, *Journal of Combinatorial Theory* 37 (1984) 121-126.
131. Du Dingzhu, Sun Jie and Song Tiantai: Simplified finite pivoting processes in the reduced gradient algorithm, *Acta Mathematicae Applicatae Sinica* 7 (1984) 142-146 (in Chinese).
132. X.-Y. Gui and D.-Z. Du: A superlinearly convergent algorithm for nonlinear programming with degenerative linear constraints, *Acta Mathematicae Applicatae Sinica, English Series*, 1 (1984) 76-84.
133. Zhao Sichun and Du Dingzhu: A sufficient condition for the problem of valve placement, *Journal of North-East Heavy Industry Institute* 4 (1983) (in Chinese).
134. Du Dingzhu and Song Tiantai: Algorithm models with Polak's procedure, *Journal of Mathematical Research and Exposition* 3 (1983) 89-95 (in Chinese).
135. Du Dingzhu and Sun Jie: A new gradient projection method, *Mathematicae Numerica Sinica* 4 (1983) 378-386 (in Chinese).
136. F.K. Hwang, J.F. Weng and D.-Z. Du: A class of full Steiner minimal trees, *Discrete Mathematics* 45 (1983) 107-112.
137. D.-Z. Du and F.K. Hwang: A new bound for the Steiner ratio, *Transactions of American Mathematical Society* 278 (1983) 137-148.
138. D.-Z. Du and F.K. Hwang: Steiner minimal trees on zig-zag lines, *Transactions of American Mathematical Society* 278 (1983) 149-156.
139. Du Dingzhu: A modification of Rosen-Polak's algorithm, *Kexue Tongbao* 28 (1983) 301-305.
140. Yang Honggang, Hong Yi and Du Dingzhu: Hard's inequality on complete Riemann manifolds, *Kexue Tongbao* 22 (1983) 1351-1354 (in Chinese).
141. Hong Yi, Yang Honggang and Du Dingzhu: An inequality for convex function, *Kexue Tongbao* 27 (1982) 901-904.
142. Liu Jiaquan, Song Tiantai and Du Dingzhu: On the necessary and sufficient condition of the local optimal solution of quadratic programming, *Chinese Annals of Mathematics* 3:5 (1982) 625-630.
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144. D.-Z. Du and F.K. Hwang: Symmetrical skew balanced starters and complete balanced Howell rotations, *Transactions of AMS* 271 (1982) 409-413.
145. D.-Z. Du and F.K. Hwang: Minimizing a combinatorial function, *SIAM Journal of Algebraic and Discrete Methods* 3 (1982) 523-528.
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147. D.-Z. Du and F.K. Hwang: Comparisons on blocking probabilities for regular series parallel channel graphs, *Bell System Technical Journal* 61 (1982) 1965-1973.
148. X.M. Chang, D.-Z. Du and F.K. Hwang: Characterization for series parallel channel graphs, *Bell System Technical Journal* 60 (1981) 887-891.
149. F.K. Hwang, T.T. Song and D.-Z. Du: Hypergeometric and generalized hypergeometric group testing, *SIAM Journal of Algebraic and Discrete Methods* 2 (1981) 426-428.
150. Du Dingzhu and Chen Yongmao: Placement of valves in vacuum systems, *Light Source Technical Journal* 4 (1976) 22-28 (in Chinese).

Books Written

1. D.-Z. Du and F.K. Hwang, *Pooling Designs and Nonadaptive Group Testing: Important Tools for DNA Sequencing*, World Scientific, 2006.
2. X. Jia, X.-D. Hu and D.-Z. Du, *Multivavelength Optical Networks*, Kluwer Academic Publisher, 2002.
3. D.-Z. Du and K.-I Ko, *Problem Solving in Automata, Language and Complexity*, John-Wiley, 2001.
4. D.-Z. Du, P.M. Pardalos, and W. Wu, *Mathematical Theory of Optimization*, Kluwer Academic Publishers, 2001.
5. D.-Z. Du, *Mathematical Logic Puzzles*, Hunan Education Publisher, 2001 (in Chinese).
6. D.-Z. Du and K.-I Ko, *Theory of Computational Complexity*, John-Wiley, 2000.
7. D.-Z. Du and F.K. Hwang: *Combinatorial Group Testing and Its Applications (2nd Edition)*, World Scientific Cor. Inc., 1999.
8. D.-Z. Du, *Introduction to Theory of Decision Trees*, Hunan Education Publisher, 1999 (in Chinese).
9. D.-Z. Du and F.K. Hwang: *Combinatorial Group Testing and Its Applications*, World Scientific Cor. Inc., 1993.
10. Du Dingzhu: *Convergence Theory of Feasible Direction Methods*, Science Press New York LTD, 1991.

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Books Edited

1. Yang Xiao, Xuemin Shen, Ding-Zhu Du (Eds.), *Wireless Network Security*, Springer, Boston, 2007.
2. Maggie X. Cheng, Yingshu Li and Ding-Zhu Du (eds.) *Combinatorial Optimization in Communication Networks*, Springer, Boston, 2006.
3. M. Cardai, I. Cardei, and D.-Z. Du (eds.), *Resource Management in Wireless Networking*, Boston, Springer 2005.
4. X. Cheng, X. Huang, and D.-Z. Du (eds.), *Ad Hoc Wireless Networking*, Kluwer Academic Publisher, 2003.
5. B. Lu, D.-Z. Du, and S. Sapatnekar (eds.), *Layout Optimization in VLSI Designs*, Kluwer Academic Publishers, 2001.
6. D.-Z. Du and H.Q. Ngo (eds.), *Switching Networks: Recent Advances*, Kluwer Academic Publishers, 2001.
7. L. Ruan and D.-Z. Du (eds.), *Optical Networks: Recent Advances*, Kluwer Academic Publishers, 2001.
8. X. Cheng and D.-Z. Du (eds.), *Steiner Trees in Industries*, Kluwer Academic Publishers, 2001.
9. D.-Z. Du, P. Eades, V. Estivill-Castro, X. Lin, and A. Sharma (eds), *Computation and Combinatorics*, Lecture Notes in Computer Science 1858, Springer-Verlag, 2000.
10. D.-Z. Du, J. Mc Smith, and H. Rubinstein (eds.), *Advances in Steiner Trees*, Kluwer Academic Publishers, 1999.
11. D.-Z. Du and P.M. Pardalos (eds.), *Handbook of Combinatorial Optimization (Vol 4)*, Kluwer Academic Publishers, 1999.
12. D.-Z. Du, X.-S. Zhang, and K. Cheng (eds.): *Operations Research and Its Applications (Vol. 3)*, World Publishers, 1998.
13. D.-Z. Du and P.M. Pardalos (eds.), *Handbook of Combinatorial Optimization (Vol 1-3)*, Kluwer Academic Publishers, 1998.
14. P.-J. Wan, D.-Z. Du, and P.M. Pardalos (eds.), *Multichannel Optical Networks: Theory and Practice*, AMS Publisher, 1998.
15. D.-Z. Du and F.K. Hwang (eds.), *Advances in Switching Networks*, AMS Publisher, 1998.
16. P.M. Pardalos and D.-Z. Du (eds.), *Network Design: Connectivity and Facilities Location*, AMS Publisher, 1998.

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17. D.-Z. Du, J. Gu, and P.M. Pardalos (eds.): *Satisfiability Problem: Theory and Applications*, AMS Publisher, 1997.
 18. D.-Z. Du, X.-S. Zhang, and K. Cheng (eds.): *Operations Research and Its Applications* (Vol. 2), World Publishers, 1997.
 19. D.-Z. Du and Ker-J Ko (eds.): *Advances in Languages, Algorithms, and Complexity*, Kluwer Academic Publishers, 1997.
 20. D.-Z. Du and D.F. Hsu (eds.): *Combinatorial Network Theory*, Kluwer Academic Publishers, 1996.
 21. D.-Z. Du, X.-S. Zhang, and K. Cheng (eds.): *Operations Research and Its Applications*, World Publishers, 1995.
 22. D.-Z. Du and M. Li (eds.): *Computation and Combinatorics*, Lecture Notes in Computer Science, Springer-Verlag, 1995.
 23. D.-Z. Du, Liqun Qi, and R.S. Womersley (eds.): *Recent Advances in Nonsmooth Optimization*, World Scientific Cor. Inc., 1995.
 24. D.-Z. Du and P.M. Pardalos (eds.): *Minimax and Its Applications*, Kluwer Academic Publishers, 1995.
 25. D.-Z. Du and X.-S. Zhang (eds.): *Algorithms and Computation*, Lecture Notes in Computer Science 834, Springer-Verlag, 1994.
 26. D.-Z. Du and J. Sun (eds.): *New Advances in Optimization and Approximation*, Kluwer Academic Publishers, 1994.
 27. D.-Z. Du and P.M. Pardalos (eds.): *Network Optimization Problems: Algorithms, Complexity, and Applications*, World Scientific Cor. Inc., 1993.
 28. D.-Z. Du and F.K. Hwang (eds.): *Computing in Euclidean Geometry*, World Scientific Cor. Inc. 1992.
 29. Du Dingzhu and Hu Guoding (eds.): *Combinatorics, Computing and Complexity*, Kluwer Academic Publishers/Science Press, 1989.
 30. D.-Z. Du (ed.): *Gradient Projection Methods in Linear and Nonlinear Programming*, Hadronic Press, Boston, 1988.
- Book Chapters**
1. X. Cheng, D.-Z. Du, J.-M. Kim and H.Q. Ngo, Guilotine cut in approximation algorithms, in R. Murphrey and P. Pardalos (eds.) *Cooperative Control and Optimization* (Kluwer Academic Publishers, Boston, 2002) pp. 21-34.
 2. G. Xue, D.-Z. Du, F.K. Hwang: Faster algorithm for shortest network under given topology, in *Fields Inst. Commun.* Vol 18 (1998) 137-152.

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3. D. Kim, D.-Z. Du, and P.M. Pardalos: On conflict-free channel set assignments for optical cluster-based hypercube networks, in *DIMACS Ser. Discrete Math. Theoret. Comput. Sci.* Vol.46. (1998) 109-116.
4. G.-H. Lin, D.-Z. Du, W. Wu, and K. Yoo: On 3-rate rearrangeability of Clos networks, in *DIMACS Ser. Discrete Math. Theoret. Comput. Sci.* Vol 42 (1998) 315-333.
5. D. Kim and D.-Z. Du: Multirate broadcast switching networks nonblocking in a wide sense, in *DIMACS Ser. Discrete Math. Theoret. Comput. Sci.* Vol 42 (1998) 59-74.
6. D.-Z. Du, D.F. Hsu, and D.J. Kleitman: Modification of consecutive-d digraphs, in *DIMACS Series in Discrete Mathematics and Theoretical Computer Science* Volume 21 (1995) 75-85.
7. D.-Z. Du: Minimax and Its Applications, in R. Horst and P.M. Pardalos (eds.) *Handbook of Global Optimization* (Kluwer Academic Publishers, 1994) 339-368.
8. D.-Z. Du: Approximating the Steiner minimum tree, in P. M. Pardalos (ed.) *Complexity in Numerical Optimization* (World Scientific, 1993) 88-106.
9. D.-Z. Du: Rosen's gradient projection method and slope lemmas, in P.M. Pardalos (ed.) *Advances in Optimization and Parallel Computing* (Elsevier Science Publishers, 1992) 65-84.
10. D.-Z. Du: On Steiner ratio conjectures, J.M. Smith and P. Winter (ed.) *Topological Network Design, Annual of Operations Research*, 33 (1991) 437-450.
11. D.-Z. Du, F. Wu and X.-S. Zhang: On Rosen's gradient projection methods, in M. Yue (ed.) *Operations Research in China, Annual of Operations Research*, 25 (1990).
12. D.-Z. Du: When is a monotonic grouping optimal? in S. Osaki and J. Cao (eds.), *Reliability Theory and Applications*, World Scientific, 1987, 66-76.
13. D.Z. Du, F.K. Hwang and G.W. Richards: A problem of lines and intersections with an application to switching networks, *Annual of Discrete Mathematics* 26 (1995) 151-164.

Recent Conference Papers (Not Appeared in Refereed Journals)

1. My T. Thai, Yingshu Li, Feng Wang, and Ding-Zhu Du, *O(logn)-Localized Algorithms on the Coverage Problem in Heterogeneous Sensor Networks*, *Proceedings of the 26th IEEE International Performance Computing and Communications Conference (IPCCC 2007)*, April, 2007.
2. Ding-Zhu Du, My T. Thai, Yingshu Li, Dan Liu and Shihwei Zhu, *Strongly connected dominating sets in wireless sensor networks with unidirectional links*, *Proceedings of the 8th Asia Pacific Web Conference (APWeb)* Harbin, China, (January 16-18, 2006) 13-24

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3. My T. Thai, Yingshu Li, Chunyu Ai and Ding-Zhu Du, Efficient broadcast tree with hitch-hiking in wireless networks, *Proceedings of 24th IEEE International Performance Computing and Communications Conference (IPCCC)*, Phoenix, Arizona, (April 7-9, 2005).
4. Feng Wang, Manki Min, Yingshu Li and Ding-Zhu Du, On the construction of stable virtual backbones in mobile ad-hoc networks, *Proceedings of 24th IEEE International Performance Computing and Communications Conference (IPCCC)*, Phoenix, Arizona, (April 7-9, 2005).
5. Scott C.-H. Huang and Ding-Zhu Du, New construction on broadcast encryption and key distribution scheme *Proceedings of IMFOCOM.05*, Miami, Florida (2005)
6. Manki Min, Ding-Zhu Du, "Virtual Backbone Schemes in Wireless Ad-Hoc Networks", student poster session in International Workshop on Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless and Peer-to-Peer Networks, Feb. 20-21, 2004, Fort Lauderdale, FL (with D.-Z. Du).
7. Manki Min, Feng Wang, Ding-Zhu Du, and Panos M. Pardalos, "A Reliable Virtual Backbone Scheme in Mobile Ad-Hoc Networks", *Proceedings of the 1st IEEE International Conference on Mobile Ad hoc and Sensor Systems*, 25-27 Oct. 2004, pp. 60-69.
8. X. Jia, D. Li, and D.-Z. Du, QoS topology control in ad hoc wireless networks, *IEEE INFOCOM'04*, Hong Kong, March 2004, accepted.
9. M.X. Cheng, J. Sun, M. Min, and D.-Z. Du, Energy-efficient broadcast and multicast routing in ad hoc wireless networks, *Proceedings of 22nd IEEE International Performance, Computing, and Communications Conference*, Phoenix, Arizona, 2003, pp. 87-94. (Received the best paper award.)
10. M. Cadei, M.X. Cheng, X. Cheng, and D.-Z. Du, Connected domination in ad hoc wireless networks, *Proc. the Sixth International Conference on Computer Science and Informatics (CS&I'2002)*, 2002.
11. X. Jia, D.-Z. Du, X. Hu, H. Huang and D. Li, Placement of Wavelength Converters for Minimal Wavelength Usage in WDM Networks, *IEEE Infocom'02*, New York, June 2002, pp.1425-1431.
12. M. Cadei, M.X. Cheng, X. Cheng, and D.-Z. Du, A Tale in Guillotine, *Proc. of Workshop on Novel Approaches to Hard Discrete Optimization*, 2002.
13. L. Ruan, D.-Z. Du, X. Hu, X. Jia, and D. Li: Approximations for color-covering problems, *Proceedings of the First International Congress of Chinese Mathematicians*, pages 503-507, Beijing, China, December 1998.

III. CONTRIBUTIONS TO EDUCATION

Ph. D. Advised in Department of Computer Science, University of Minnesota

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- Bhaskar Dasgupta (Fall 1994), Associate Professor, Department of Computer Science, University of Illinois at Chicago, USA. **Career Award Winner.**
- Dean F. Kelley (Fall 1994), Associate Professor, Minnesota State University, USA.
- Albert Borchers (Spring 1996)
- Biao Gao (Spring 1997), CISCO.
- Perjun Wan (Spring 1997), Associate Professor, Department of Computer Science, Illinois Institute of Technology, USA.
- Feng Cao (Spring 1997), CISCO
- Dongsoo Kim (Fall 1998), Associate Professor, Department of Electrical Engineering, Indiana University Purdue University at Indianapolis, USA.
- Quanzhan Zheng (Spring 2001) Microsoft.
- Donghui Chen (Spring 2001) Sycamore.
- Shituo Han (Spring 2001) Oracle.
- Bing Lu (Spring 2001) Cadence.
- Yunjae Jung (co-advisor with Haesun Park) (Spring 2001)
- Lu Ruan (Spring 2001), Assistant Professor, Department of Computer Science, Iowa State University, USA. **Career Award Winner.**
- Hung Quang Ngo (Spring 2001), Assistant Professor, Department of Computer Science and Engineering, State University of New York at Buffalo, USA. **Career Award Winner.**
- Joon-Mo Kim (Fall 2001), National Lab. of Defense, Korea.
- Xiuzhen Cheng (Spring 2002), Assistant Professor, Department of Computer Science, George Washington University, Washington DC, USA. **Greer Award Winner.**
- Zhigang Gong (Spring 2003), IBM.
- Ionut E. Cardei (Spring 2003), Assistant Professor, Department of Computer Science and Engineering, Florida Atlantic University, USA.
- Xiao Huang (Spring 2003) 3M.
- Mihaela Cardei (Spring 2003), Assistant Professor, Department of Computer Science and Engineering, Florida Atlantic University, USA. **Greer Award Winner.**
- Xiaoyan Cheng (Summer 2003), Assistant Professor, Department of Computer Science, University of Missouri-Rolla, USA.

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- Mariki Min (Summer 2004), Assistant Professor, Department of Computer Science, University of South Dakota State University, USA.
- Haizhou Chen (Summer 2004) Marvell.
- Xiaoyu Wu (Summer 2004) MicroSoft.
- Yingshu Li (2005, co-advisor with J. Srivastava), George State University, USA. Career Award Winner.
- Ying Zhao (2005, co-advisor with G. Karypis), Tsing University, China.
- My Thai (Fall, 2005), University of Florida, USA.
- Feng Wang (Fall, 2005) Seagat.

Ph. D. Advised in Institute of Applied Mathematics, Beijing

- Yanfeng Xu (Spring 1992), Professor, Department of Management Science, Xi'an Jiaotong University, China.
- Shiquan Wu (Spring 1992), Associate Professor, National Defense University, China.
- Guohui Lin (Fall 1997), Assistant Professor, Department of Computer Science, University of Alberta, Canada.
- Shuixiang Cao (Spring 1998), Associate Professor, Department of Mathematics, Graduate School, Chinese Academy of Sciences, China.
- Haizhong Shi (Spring 1998), Associate Professor, Department of Computer Science, Northwest Normal University, Lanzhou, China.

M.S. Advised in Department of Computer Science, University of Minnesota

- Lihui Hwang (Spring 1994); Lei Jiang (Spring 1996); Jianhua Zhang (Spring 1996) (Ph.D. in Mathematics); Jie Yun (Spring 1996) (Ph.D. in Mathematics); Dengfeng Jiang (Spring 1997); Zhe Yang (Spring 1997); Jun Han (Spring 1997); Chugui Li (Spring 1997) (Ph.D. in Biology); Li-Peng Liou (Spring 1997) (Ph.D. in Mathematics); Jiansong Zhang (Spring 1997); Yong Lin (Spring 1997) (Ph.D. in Mathematics); You Wang (Summer 1997); Xin Guo (Summer 1997); Dayong Jin (Spring 1998); Wei Han (Spring 1998); Shaoping Zhou (Spring 1998); Ting Yu (Spring 1998) (Ph.D. from UIUC and Assistant Professor at North Carolina State University, USA); Dong Ma (Spring 1998); Mei Ji (Summer 1998); Limei Wu (Summer 1998); Shibin Li (Summer 1998); Junhong Cui (Summer 1999) (Ph.D. from UCLA, Assistant Professor at University of Connecticut, USA); Xiaoyu Wu (Fall 1999); Fangge Liu (Spring 2000); Xiaofei Diao (Spring 2000); Guanghui Chen (Spring 2000); Ying Zhe (Spring 2000); Hailan Zheng (Spring 2000); Yiyun Chen (Fall 2000); Hongyi Wang (Fall 2000); Bin Chen (Fall 2000) (Ph.D. in Chemistry); Arnold Mayaka (Fall 2000); Kebiao Yuan (Spring 2001); Jinzhu Yu (Spring 2001); Fan Yang (Spring 2001); Jianqiang Li (Spring

2001); Wei Chen (Summer 2001); Yonglin Ren (Fall, 2001) (Ph.D. in Carlson Business School); Shiwei Zhu (Fall, 2001); Min Wei (Fall, 2001) (Ph.D. in Biology); Rong Wu (Spring, 2002); Li Lu (Spring, 2003); Raghuram Lanka (Spring, 2003); Projival Ghosh (Fall, 2003); Yamsee Venuturumilli (Fall, 2003).

M.S. Advised in Institute of Applied Mathematics, Beijing

- Feng Yang (1988); Zhicheng Liu (1989) (Ph.D. from Princeton Univ., MicroSoft Research).

CURRICULUM VITAE

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ACADEMIC AND SCIENTIFIC DEGREES

- 1997 Dr. Habil. (distinguished post Ph.D. degree, awarded by the Technical University of Budapest)
- 1996 Doctor of the Hungarian Academy of Sciences
(the highest scientific degree in Hungary, awarded only to a small number of outstanding researchers with persistent international excellence)
- 1981 Ph.D. Electrical Engineering, Technical University of Budapest
- 1979 M.Sc. Electrical Engineering, Technical University of Budapest
- 1976 B.Sc. Electrical Engineering, Technical University of Budapest

ACADEMIC POSITIONS HELD

- 1998-current: Professor of Computer Science, in the Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas.
- 1997 Széchenyi Professor, Department of Telecommunications and Telematics, Technical University of Budapest.
- 1992-1997 Director of Research of the High Speed Networks Laboratory (HSNLab), Technical University of Budapest. Responsible for leading high speed networking research with the continuous support and cooperation of Ericsson.

1

- 1996 Senior Research Associate (visiting), Department of Electrical and Computer Engineering, Boston University.
- 1995 Senior Associate Professor, Department of Telecommunications and Telematics, Technical University of Budapest (Budapest, Hungary).
- 1991-1992 (Sabbatical) Senior Research Fellow, Department of Electrical and Computer Engineering, University of Massachusetts at Amherst.
- 1982-1995 Associate Professor, Department of Telecommunications and Telematics, Technical University of Budapest (Budapest, Hungary).
- 1980-1981 Visiting Scholar at the Department of Mathematics, Virginia Polytechnic Institute, Blacksburg, Virginia.
- 1976-1982 Assistant Professor, Department of Mathematics, School of Electrical Engineering, Technical University of Budapest.

INDUSTRIAL AND CONSULTING ACTIVITIES

- Advanced Communication Technologies and Services (European Union Projects)*: auditor in high speed networking (1997).
- Ericsson Telecommunications Ltd.*: Development of PLASMA, an intelligent network management software support tool (1993-95).
- Cooperation in the Field of Science and Technology (European Union COST 242 Project)*: invited expert in the field of Asynchronous Transfer Mode (ATM) networks (1994-96).
- Hungarian Telecommunications Company*: ATM network design and dimensioning (1993).
- Hungarian Telecommunications Company*: Synchronous Digital Hierarchy (SDH) network design (1991).
- National Board of Technical Development (Hungary)*: Development of speaker independent automatic speech recognizer (1987-90).
- National Board of Technical Development (Hungary)*: Development of isolated word recognizer (1985-88).

2

Mechanical Laboratory, Budapest, Hungary: Development of automatic speech detector (1982-84).

RESEARCH TOPICS

My mission in research is to apply the methods and results of Computer Science for solving problems in communication networks, with special regards to the following fields:

- Algorithmic, optimization and design problems in communication networks.
- Wireless network architectures and protocols, medium access control protocols, topology control, scalability analysis.
- High speed networks and protocols.

GRANTS

- "Modelling Networks with Multiple Physical Layers - The Case for Multi-Radio Networks", NSF Grant # CCF-0634848, amount \$350,000; start date 10/01/2006; duration 3 years; PIs: A. Faragó and S. Basagni.
- "MERIT: A Formal Framework for Systematic Protocol Assessment", NSF Grant # ANI-0220001, ITR program, amount \$431,086; start date 10/01/2002; duration 5 years; PI: A. Faragó; Co-PI: V.R. Syrotiuk.
- "Meta-MAC Protocols: A New Dimension to Adaptation in Medium Access Control", NSF Grant # ANI-0105985, amount \$300,000; start date 9/01/2001; duration 5 years; PI: A. Faragó; Co-PI: V.R. Syrotiuk.
- "Differentiated Reliability (DiR) in Multi-layer Optical Networks", NSF Grant # ANI-0082085, amount \$500,119; start date 1/01/2001; duration 4 years; PI: A. Fumagalli; Co-PI: A. Faragó.

PROFESSIONAL SOCIETIES AND AWARDS

3

Senior Member, IEEE (2004)

Member, IEEE (1999)

Founder member of the Hungarian Chapter of ACM (1992)

Member János Bolyai Mathematical Society (Hungary, 1990)

Niveau Award, Journal on Communications, 1988

Member, Scientific Society for Telecommunications (Hungary, 1983)

PROFESSIONAL ACTIVITIES

Editor, *Wireless Networks* journal.

Guest Editorial Board Member in the French journal *Rezeaux et Systems Distributes*. Special Issue on Mobility and Internet.

Technical Program Committee member of the following conferences: Mobicom'98, ICCCN'98, WoWMoM'99, Networking'2000, IFIP ATM & IP'2001, High Speed Networking Symp.'02, PerCom'03, International Workshop on Adaptive Wireless Networks (AWIN'2004 and 2005), International Conference on Ad hoc Networks and Wireless (AdHocNow 2004 and 2005), ACM Workshop on Foundations of Mobile Computing (DIALM-POMC 2004 and 2005), MED-HOC-NET'06, AdHocNow'06.

Reviewer for many journals and conferences in the networking and telecommunications field.

Reviewer and Panelist, *National Science Foundation*.

Reviewer, *American Mathematical Society*.

Member, *Public Body of the Hungarian Academy of Sciences* (1997).

Member, *Telecommunication Systems Committee of the Hungarian Academy of Sciences* (1997).

4

Program Chair, *IFIP Working Group 6.3 Workshop*, Balatonfüred, Hungary, 1996.

Member, Editorial Board, *Journal on Communications*, Special Issue on ATM Networks, 1995.

Member, *IFIP Working Group 6.3 "Performance of Communication Systems"* (1994).

Program Chair, *Swedish-Hungarian NetWorkshop*, Balatonfüred, Hungary, annually between 1993-1997.

Associate member, *Mathematical Research Institute of the Hungarian Academy of Sciences* (1989).

Invited lectures

"Random Graph Models for Ad Hoc Networks", Dept. of Computer Science, The University of Chicago, July 29, 2005.

"On Algorithmic Challenges in Networking", Dept. of Computer Science, University of Chicago, Oct. 25, 2002.

"Improving the Simulated Annealing Optimization Technique via Parallelization", University of Texas at Arlington, September 2001.

"Modeling Ad Hoc Network Topologies via Random Graphs" *High Speed Networking (HSN'99) International Workshop*, Balatonfüred, Hungary, May 2000.

"Exact Reduced Load Equations", *High Speed Networking (HSN'99) and Ericsson Simulation: Techniques and Performance Analysis Joint International Workshop*, Balatonfüred, Hungary, May 1999.

"What Can Be Proven About Heuristic Optimization?", *High Speed Networking International Workshop*, Balatonfüred, Hungary, May 13-16, 1998.

"Virtual Networking – A New Era in Network Management", *International Conference on Effective Network Management Systems*, London, May 1995.

"Minimizing the Worst Case Queueing Delay in Connection Oriented Packet Switched Networks", Ellentel Telecommunications Systems Laboratories, Stockholm, March 17, 1992.

"Optimizing the System of Virtual Paths in ATM Networks", Ellentel Telecommunications Systems Laboratories, Stockholm, March 18, 1992.

"Getting Rid of the 'Curse of Dimensionality' in Neural Network Classifiers", Ellentel Telecommunications Systems Laboratories, Stockholm, March 19, 1992.

"Robust Coloring of Graphs that Change", Department of Computer Science, University of Chicago, May 26, 1992.

"ATM Network Optimization via Neural Tools", Swedish-Hungarian Workshop on Artificial Neural Networks, Budapest, May 16, 1993.

"The Erlang Fixed Point Approach", Joint Workshop of the Dept. of Telecomm. and Telematics, Technical Univ. of Budapest and Ellentel Telecommunications Systems Laboratories, Sweden; Budapest, May 17, 1993.

"Telecom related Research at TUB", Polytechnic University, Brooklyn, New York, March 16, 1993.

"Results on ATM Network Partitioning", Ellentel Telecommunications Systems Laboratories, Lund, Sweden, March 16, 1994.

"State of Art in ATM Network Dimensioning", Ellentel Telecommunications Systems Laboratories, Stockholm, March 21, 1994.

"Methodological Thoughts on ATM Network Dimensioning and Planning", Lund University, Lund, Sweden, Feb. 14, 1995.

"The ATM Challenge on Dimensioning and Planning", Ericsson, Stockholm, Sweden, Feb. 16, 1995.

"How ATM Opens New Dimensions in Traffic Management?" Ellentel Telecommunications Systems Laboratories, Alvsjö, Sweden, Feb. 17, 1995.

"On ATM Network Planning Problems", Joint Workshop of the Dept. of Telecom. and Telematics, Technical Univ. of Budapest and Ellentel Telecommunications Systems Laboratories, Sweden; Budapest, May 4, 1995.

"Overload Control in Network Traffic Management", Joint Seminar and Project Meeting of the Dept. of Telecom. and Telematics, Technical Univ. of Budapest and Ellentel Telecommunications Systems Laboratories, Sweden: Budapest, May 5, 1995.

"Planning and Management Problems in ATM Networks", Joint Workshop of the Dept. of Telecom. and Telematics, Technical Univ. of Budapest and Ericsson, Budapest, November 30, 1995.

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126. M. Park, W. Chen. J.K.V. Wilson, W. Wu and A. Faragó, "Fault Tolerant Dual Power Assignment in Wireless Sensor Networks", Dept. of Computer Science, The University of Texas at Dallas, Technical Report UTDCS-52-06, Oct 2006.
 127. M. Park, W. Chen. J.K.V. Wilson, M.T. Thai, W. Wu and A. Faragó, "A Dominating and Absorbent Set in Wireless Ad Hoc Networks with Different Transmission Range", Dept. of Computer Science, The University of Texas at Dallas, Technical Report UTDCS-53-06, Oct 2006.
 128. N. Meghanathan and A. Faragó, "An Efficient Algorithm for the Optimal Number of Route Transitions in Mobile Ad Hoc Networks", Dept. of Computer Science, The University of Texas at Dallas, Technical Report UTDCS-02-05.
 129. N. Meghanathan and A. Faragó, "Extension of the Algorithm for Optimal Number of path Transitions to Steiner Trees and Connected Dominating Sets", Dept. of Computer Science, The University of Texas at Dallas, Technical Report UTDCS-03-05.
 130. N. Meghanathan and A. Faragó, "Comparison of Routing Strategies for Minimizing Energy Consumption in Mobile Ad Hoc Networks", Dept. of Computer Science, The University of Texas at Dallas, Technical Report UTDCS-04-05.
 131. N. Meghanathan and A. Faragó, "Survey on Multicast Routing Protocols for Mobile Ad Hoc Networks", Dept. of Computer Science, The University of Texas at Dallas, Technical Report UTDCS-08-05.
 132. N. Meghanathan and A. Faragó, "Stability - Delay Analysis in Mobile Ad Hoc Networks", Technical Report UTDCS-10-04, Dept. of Computer Science, University of Texas at Dallas, March 2004.

133. N. Meghanathan and A. Faragó, "Maximizing Network Lifetime under Fixed Energy Budget in Ad Hoc Networks," Technical Report UTDCS-21-04, Dept. of Computer Science, University of Texas at Dallas, July 2004.
134. N. Meghanathan and A. Faragó, "Power Sensitive Power Control in Ad Hoc Networks," Technical Report UTDCS-35-04, Dept. of Computer Science, University of Texas at Dallas, September 2004.
135. N. Meghanathan and A. Faragó, "Survey and Taxonomy of 55 Unicast Routing Protocols for Mobile Ad Hoc Networks," Technical Report UTDCS-40-04, Dept. of Computer Science, University of Texas at Dallas, November 2004.
136. N. Meghanathan and A. Faragó, "On the Route Refresh Frequency for On-demand Maximum Battery Life Routing in Ad Hoc Networks," Technical Report UTDCS-45-04, Dept. of Computer Science, University of Texas at Dallas, December 2004.
137. A. Faragó, F. Ungváry and A. Fumagalli, "Towards the Unified Engineering of Traffic and Reliability", Technical Report UTDCS-34-02, Dept. of Comp. Sci., The Univ. of Texas at Dallas, Dec. 2002.
138. A. Faragó, "A Counterexample to the Tang-Zhou Maximum Clique Algorithm", Technical Report, Dept. of Comp. Sci., Univ. of Texas at Dallas, UTDCS-11-01, Jan. 2001.
139. A. Faragó and V. R. Syrotiuk, "MERIT: A Unified Framework for Routing Protocol Assessment in Mobile Ad Hoc Networks," Technical Report, Dept. of Comp. Sci., Univ. of Texas at Dallas, UTDCS-05-01, Jan. 2001.
140. A. Faragó and V. R. Syrotiuk, "Transport Layer Routing Assessment in Mobile Ad Hoc Networks", Technical Report, Dept. of Comp. Sci., Univ. of Texas at Dallas, UTDCS-19-01, Aug. 2001.
141. A. Faragó, "Analysis of Multiservice Loss Networks with Arbitrary Link Dependencies", Technical Report UTDCS-09-00, Dept. of Computer Science, UTD, July 2000.

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142. A. Faragó, "Almost Surely Almost Exact Optimization in Random Graphs" Technical Report UTDCS-10-00, Dept. of Computer Science, UTD, Oct. 2000.
143. I. Chlamtac, A. Faragó, T. Zhang, "Optimizing the System of Virtual Paths in ATM Network Architecture", COST 242 Project Document, No. TD(93)25, (European Cooperation in the Field of Science and Technology), 1993.
144. I. Chlamtac, A. Faragó, H.Y. Ahn, "A Nearly Optimum Slot Allocation Algorithm for TDMA Protocols in Case of Multiple Reception Capacity", Technical Report TR-93-CSE-29, Dept. of Electrical & Computer Eng., Univ. of Massachusetts, Amherst, 1993.
145. I. Chlamtac, A. Faragó, "Bounded Delay Packet Routing in Large Multihop Communication Networks", Technical Report TR-93-CSE-26, Dept. of Electr. & Comp. Eng., Univ. of Massachusetts, Amherst., 1993.
146. I. Chlamtac, A. Faragó, H.Y. Ahn, "Topology Transparent Schedules for Packet Radio Networks", Technical Report TR-93-CSE-28, Dept. of Electr. & Comp. Eng., Univ. of Massachusetts, Amherst, 1993.
147. I. Chlamtac, A. Faragó, "Mobility and Multimedia: Towards Mobile ISDN Services Based on Packet Radio Networks", Technical Report TR-93-CSE-27, Dept. of Electr. & Comp. Eng., Univ. of Massachusetts, Amherst, 1993.
148. I. Chlamtac, A. Faragó and T. Zhang, "How to Establish and Utilize Virtual paths in ATM Networks", Technical Report TR-93-CSE-24, Dept. of Electr. & Comp. Eng., Univ. of Massachusetts, Amherst, 1993.
149. A. Faragó, "Mathematical Formulation Possibilities of the ATM Network Dimensioning and Flow Assignment Problem", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1993.
150. G. Gordos, A. Faragó, "Overview of Routing Algorithms", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1993.

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151. G. Gordos, A. Faragó, "A Layered Conceptual Model to Support ATM Network Dimensioning and Routing", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
152. A. Faragó, "Extension of Objective Functions from Link Level to Network Level in ATM Network Dimensioning", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
153. G. Gordos, A. Faragó, "Description of Network State for Dimensioning and Routing Purposes", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
154. A. Faragó, "Detailed Mathematical Formulation of the ATM Dimensioning Model", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
155. A. Faragó, "An Improved Hoeffding-type Bound on Link Blocking Probability", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
156. A. Faragó, "Capacity Partitioning in ATM Networks Using the Erlang Fixed Point Approximation", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
157. A. Faragó, "A Simplified Dimensioning Model Based on Equivalent Link Blocking Probabilities", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
158. A. Faragó, "Comparison of Network Partitioning Algorithms", Dept. of Telecom. & Telematics, Tech. Univ. of Budapest, Hungary, 1994.
159. A. Faragó, "Introducing Revenue and Load Sharing in the Fixed Point Model", Dept. of Telecom. & Telematics, Technical Univ. of Budapest, Hungary, 1994.
160. A. Faragó, S. Blaabjerg, W. Holender, T. Henk, L. Asz, A. Szentosi and Zs. Ziaja, "Optimal Partitioning of ATM Networks into Virtual Sub-networks", COST 242 Project Document, No. TD(94)24, (European Cooperation in the Field of Science and Technology), 1994.

Further 25 reports in Hungarian, detailed list is omitted.

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Xiaohu Guo

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Richardson, Texas 75083-0688
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RESEARCH INTEREST
Computer Graphics
Computer Animation and Simulation
Human-Computer Interaction
Visualization
Scientific Computing
Geometric Modeling
Physically-Based Modeling
Virtual Reality and Virtual Environment
Medical Imaging
Computer Vision

EMPLOYMENT
Tenure-Track Assistant Professor, 2006-Present.
Department of Computer Science
University of Texas at Dallas

EDUCATION
Stony Brook University, Stony Brook, New York, USA

- Ph.D. in Computer Science, May 2006
- Dissertation Title: "Point-Based Modeling, Animation, and Simulation System for Computer Graphics"
- Advisor: Professor Hong Qin
- M.S. in Computer Science, May, 2004

University of Science and Technology of China, Hefei, Anhui, China
B.S. in Computer Science, June, 2001

TEACHING EXPERIENCE

Computer Graphics
Course Instructor, Department of Computer Science, University of Texas at Dallas
Fall, 2006

Data communication and Networks
Teaching Assistant, Department of Computer Science, Stony Brook University
August, 2001 - May, 2003
Outstanding Teaching Assistant award for academic year 2001-2002, and 2002-2003.

PUBLICATIONS

Refereed Journal Papers:

1. Xiaohu Guo, Xin Li, Yunfan Bao, Xianfeng Gu, Hong Qin, "Meshless Thin-shell Simulation Based on Global Conformal Parameterization", in *IEEE Transactions on Visualization and Computer Graphics*, Vol. 12, No. 3, pp. 375-385; 2006.
2. Seyoum Park, Xiaohu Guo, Hayong Shin, Hong Qin, "Surface Completion for Shape and Appearance", in *The Visual Computer*, Vol. 22, No. 3, pp. 168 - 180, 2006.
3. Xiaohu Guo, Hong Qin, "Real-time Meshless Deformation", in *Computer Animation and Virtual Worlds*, Vol. 16, No. 3-4, pp. 189 - 200, 2005.
4. Yunfan Bao, Xiaohu Guo, Hong Qin, "Physically-based Morphing of Point-sampled Surfaces", in *Computer Animation and Virtual Worlds*, Vol. 16, No. 3-4, pp. 509 - 518, 2005.

5. Xiaohu Guo, Jing Hua, Hong Qin, "Touch-Based Haptics for Interactive Editing on Point Set Surfaces", in *IEEE Computer Graphics and Applications*, Vol. 24, No. 6, pp. 31 - 39, 2004.
6. Xiaohu Guo, Jing Hua, Hong Qin, "Scalar-Function-Driven Editing on Point Set Surfaces", in *IEEE Computer Graphics and Applications*, Vol. 24, No. 4, pp. 43 - 52, 2004.

Refereed Conference Papers:

7. Xin Li, Xiaohu Guo, Hongyu Wang, Ying He, Xianfeng Gu, Hong Qin, "Harmonic Volumetric Mapping for Solid Modeling Applications", to appear in *Proceedings of ACM Symposium on Solid and Physical Modeling*, 2007.
8. Kexiang Wang, Ying He, Xiaohu Guo, Xianfeng Gu, Hong Qin, "Spline Thin-Shell Simulation of Manifold Surfaces", in *Proceedings of Computer Graphics International, Lecture Notes in Computer Science*, Springer, Vol. 4035, pp. 570-577, 2006.
9. Seyoun Park, Xiaohu Guo, Hayong Shin, Hong Qin, "Shape and Appearance Repair for Incomplete Point Surfaces", in *Proceedings of the 10th IEEE International Conference on Computer Vision (ICCV)*, pp. 1260 - 1267, Beijing, October 2005.
10. Xiaohu Guo, Jing Hua, Hong Qin, "Point Set Surface Editing Techniques based on Level-Sets", in *Proceedings of Computer Graphics International (CGI)*, IEEE CS Press, pp. 52 - 59, Crete, Greece, June 2004.
11. Xiaohu Guo, Jing Hua, Hong Qin, "Dynamic Points: A Real-time Sculpting System on Point Set Surfaces", in *Proceedings of the Eighth SIAM Conference on Geometric Design and Computing*, Seattle, WA, November 2003.
12. Xiaohu Guo, Hong Qin, "Dynamic Sculpting and Deformation of Point Set Surfaces", in *Proceedings of the 11th Pacific Conference on Computer Graphics and Applications (Pacific Graphics)*, IEEE CS Press, pp. 123 - 130, Cammore, Alberta, Canada, October 2003.

RESEARCH PRESENTATIONS

- Invited talk at *Department of Computer Science, University of Texas at Dallas, TX*, Apr 3, 2006. "Point-Based Graphics: A Modeling, Animation, and Simulation Paradigm".
- Invited talk at *Department of Computer Science, Lehigh University, PA*, Mar 16, 2006. "Point-Based Graphics: A Modeling, Animation, and Simulation Paradigm".
- Invited talk at *Department of Computing, The Hong Kong Polytechnic University, Hong Kong*, Mar 6, 2006. "Point-Based Graphics: A Modeling, Animation, and Simulation Paradigm".
- Invited talk at *Department of Computer Science, Kent State University, OH*, Feb 24, 2006. "Point-Based Graphics: A Modeling, Animation, and Simulation Paradigm".
- Invited talk at *2005 IBM Graphics and Visualization Student Symposium, IBM T. J. Watson Research Center, Hawthorne, December 6, 2005*. "Meshless Modeling, Animating, and Simulating Point-Based Geometry".
- Invited talk at *Department of Computer Science, The University of Hong Kong, Hong Kong*, October 21, 2006. "Dynamic Points: When Geometry Meets Physics".
- Conference presentation at *International Conference on Computer Animation and Social Agents (CASA)*, Hong Kong, October 2005. "Real-time Meshless Deformation".

- Conference presentation at *IEEE Computer Graphics International (CGI)*, Crete, Greece, June 2004. "Point Set Surface Editing Techniques based on Level-Sets".
- Conference presentation at *IEEE Pacific Conference on Computer Graphics and Applications (Pacific Graphics)*, Cammore, Alberta, Canada, October 2003. "Dynamic Sculpting and Deformation of Point Set Surfaces".

PROFESSIONAL ACTIVITIES

- Local Arrangement Chair:
 - Ninth ACM Multimedia and Security Workshop, Dallas, 2007.
- Program Committee Member:
 - 15th Pacific Conference on Computer Graphics and Applications (Pacific Graphics), Maui, Oct 2007.
 - 10th International Conference on Computer Aided Design and Computer Graphics (CADCG), Beijing, Oct 2007.
 - 6th International Workshop on Computer Graphics and Geometric Modeling (CGGM), Beijing, May 2007.
- Paper Referee:
 - IEEE Transactions on Visualization and Computer Graphics (TVCG)
 - IEEE Computer Graphics and Applications (CG&A)
 - IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
 - Eurographics (EG)
 - Pacific Graphics (PG)
 - Computer Graphics International (CGI)
 - Asia-Pacific Workshop on Visual Information Processing (VIP)
 - International Workshop on Computer Graphics and Geometric Modeling (CGGM)
 - International Conference on Computer Aided Design and Computer Graphics (CADCG)
- Member:
 - ACM
 - ACM SIGGRAPH
 - IEEE
 - IEEE Computer Society.

UNIVERSITY SERVICES

- Dissertation and Thesis Committee Member for:
 - Pang Agarwal (PhD thesis committee, Aug. 2007, expected)
 - Vivek Ramaswamy (MS thesis committee, Nov. 2006)
 - Sancer Agrawal (MS thesis committee, Nov. 2006)
- PhD Qualifying Exam Committee Member, 2006-present.

Curriculum Vitæ

GOPAL GUPTA June 2006

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AREAS OF INTEREST

- **Programming Languages:** Implementation and Semantics, Logic Programming, Constraint Programming, Applications, Compile-time Analysis.
- **Software Engineering:** Software Verification, Domain Specific Languages, Executable Specifications, Agent/Web/Service based Computing, Interoperability.
- **Parallel and Distributed Processing:** High Performance AI and Logic Programming Systems, Automatic Parallelization and Parallelizing Compilers, Parallel Architectures, Applications.
- **Assistive Technology:** Aural Navigation of the Web, Making Math Accessible to Visually Impaired

EDUCATION

Ph.D. Computer Science, 1991, University of North Carolina at Chapel Hill. Advisor: Dr. Bharat Jayaraman. My thesis was published by Kluwer Academic Publishers.
M.S. Computer Science, 1987, University of North Carolina at Chapel Hill.
B.S. Computer Science, May 1985, Indian Institute of Technology, Kanpur, India.

PROFESSIONAL EXPERIENCE

9/04 - present: Associate Department Head, Department of Computer Science, UT Dallas.
9/02 - present: Professor, Department of Computer Science, UT Dallas.
9/00 - 8/02: Associate Professor, Department of Computer Science, UT Dallas.
7/97 - 8/00: Associate Professor, Department of Computer Science, NMSU. Director, Laboratory for Logic, Databases, and Advanced Programming.
1/92 - 6/97: Assistant Professor, Department of Computer Science, NMSU. Co-founder and Director, Laboratory for Logic, Databases, and Advanced Programming.
11/89 - 12/91: Member of Research Staff, Parallel Logic Programming Systems Group, Advanced Computing Research Center, University of Bristol, UK, Group Leader: David H. D. Warren.

8/85 - 10/89: Research/Teaching Assistant, UNC Chapel Hill.

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5/85 - 7/85: Programmer, Uttar Pradesh Development System Corporation (India).

AWARDS AND HONORS

- Best paper award. European Conferences on Web Services 2005.
- Most practical paper award. 6th International Conference on Practical Aspects of Declarative Languages. 2004. With H-F Guo.
- Best paper. Software Verification and Validation Workshop. 2003. With Q. Wang.
- Appointed as area editor of the Journal, Theory and Practice of Logic Programming.
- Member of the executive committee, Association for Logic Programming. Association for Logic Programming has about 500-600 members worldwide. It sponsors international logic programming conferences and publishes the Journal of Logic Programming.
- Member of the executive committee, European Association for Programming Languages and Systems.
- Junior Faculty Enhancement Award in Computer Sciences, Oak Ridge Associated Universities, 1992 (10 awards out of 128 competitors).
- Graduate School Fellowship, University of North Carolina at Chapel Hill, 1985-86.
- Recipient of the "National Talent Search Scholarship" from the Government of India, 1981-1985 (awarded to approximately 150 students every year nationwide).
- Graduated with honors and 14th position among approximately 500,000 students in state-wide High School (12th grade) examination in India.
- 16th rank nationwide among approximately 100,000 examinees in the entrance examination of the Indian Institutes of Technology (IITs).

CURRENT GRANTS

1. PI, "Training Students for Research and Teaching Careers in Computer Science and Software Engineering," **Dept. Of Education**. \$507,000, 2006-09. Co-PI: Zhang, Huynh, Ntafos, Kim, Mili. \$500,000 matching funds from Texas Enterprise Funds.
2. Co-PI, "Computer Security Research," **Department of Defense**. \$75,000. PI: K. Sarac.
3. Co-PI. Web-based Emergency Response Management Technology. **US Environmental Protection Agency**. \$3,850,000, 2000-07. PI: D. Harris. Co-PI: B. Raghavchari.
4. Co-PI. Training Software Engineers for the High-Tech Workforce. PI: K. Zhang. Co-PIs: S. Kim, D. T. Huynh, S. Ntafos, S. Bowen. **NSF**. \$385,000. 2004-2008. Additional matching funds from UT Dallas: \$120,000.
5. Consultant, "Interdisciplinary research in bioinformatics." Award to New Mexico State University from **NSF**. 2004-2009.

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PAST RESEARCH GRANTS HELD

1. PI. Buffer Attack-proofing Software Binaries. **AT&T Corp.** \$16,667 with \$16,667 matching funds from the State of Texas Emmit Project Funds. (PI receiving grant is E. Douglas Harris).
2. PI. Development of a Universal Services Description Language (USDL). **Metalltech Corp.** \$20,000 with \$20,000 matching funds from the State of Texas Emmit Project Funds. 2005-2006.
3. Co-PI. The Development of a Global Translation Appliance with Applications to Assistive Technologies. PI: A. Karshner, Co-PIs: K. Miesenberger (Linz), E. Pontelli (NMSU), H.-F. Guo (SUNY-SB). **Dept. of Education.** \$417,000. 2001-2006.
4. PI. Resources for Research in Scalable Parallel Computing and Networking Simulation. **US National Science Foundation.** (including 33% matching funds from UTD) \$93,000. Co-PIs: R. Prakash, O. Daescu. 2001-2006.
5. PI. "Horn Logic Denotations and their Applications" **National Science Foundation (NSF)** (International Division), \$27,000, 1999-05. (Collaboration with Neil Jones (Denmark) and Michael Leuschel (England)).
6. Co-PI. "Training Students for Interdisciplinary Research and Teaching Careers in Computer Science and Traditional Sciences," **DOE.** \$306,000, 2000-03. PI: A. Karshner. Co-PI: D. Ranjan.
7. Co-PI. Translator Filter Technology for Bioinformatics Software Tools. **ARO sub-contract from Physical Science Lab, NMSU.** \$55,000, 2000-01. PI: B. Milligan (NMSU Biology). Co-PI: D. Ranjan, E. Pontelli.
8. Co-PI. "Complexity Study of Dynamic Data-structures in Advanced Programming Language Implementation," **National Science Foundation (NSF)** (CISE Theory div.), \$215,000, 2000-03. PI: D. Ranjan, Co-PI: E. Pontelli.
9. PI. "High-performance, Scalable Parallel Constraint Programming Systems," **National Science Foundation (NSF)** (Operating Systems and Compilers Directorate), \$140,000, 1999-02. Co-PI: Enrico Pontelli.
10. Co-PI. "Non-visual Browsing of the World Wide Web: Tables, Frames and Forms" **National Science Foundation (NSF)**, \$575,000. PI: Art Karshner, Co-PI: Enrico Pontelli. 1999-2002.
11. Co-PI. "Mathematics Accessible to Visually Impaired Students" **National Science Foundation (NSF)**, \$581,000, PI: Art Karshner, Co-PI: Sandy Geiger. 1998-2001.
12. Project Co-director, "Irregular and Dynamic Parallelism in Symbolic and Scientific Computing," \$1,500,000. (11 other Co-PIs). **National Science Foundation (NSF)** Infrastructure Grant (MII).
13. PI. "Workshop for NSF PI's," **National Science Foundation (NSF)** \$84,000, 1999-00.

14. Co-PI. "Laboratory for Logic and Databases," **National Science Foundation (NSF)** (Human Resource Development Directorate), \$152,200, 1997-2000, other PI: H. Hernandez.
15. PI. "Parallel and Distributed Constraint Programming Systems on Multiprocessor PCs: Implementations and Applications," **National Science Foundation (NSF)**, \$37,000, 1998-1999, Co-PIs: E. Pontelli, J. Wiebe, D. Ranjan. (Research Instrumentation).
16. Co-PI. "Training Students for Research and Teaching Careers in Computer Science." **DOE.** \$367,000, 1997-00. PI: A. Karshner. Co-PI: D. Ranjan.
17. Co-PI. "An Efficient Concurrent Constraint Framework for Symbolic and Internet/WWW Computing," \$18,000. **Fullbright Foundation.** 1998-99. Co-PI: E. Pontelli.
18. PI. "Summer School in Constraint Logic Programming," **National Science Foundation (NSF)** \$11,300, 1999-00.
19. PI. "NMSU Advising and Degree Audit System," **College of Arts and Sciences, NMSU** \$25,000, 1997-00.
20. PI. "Parallel Constraint Programming" **National Research Council**, \$2,750, 1999-00. (Collaboration with Hungary).
21. PI. "Implementation Techniques for Parallel Logic Programming: Incremental Development of Parallel Prolog Engines," **National Science Foundation (NSF)** (Programming Languages and Compilers Directorate), \$100,000, 1996-99.
22. PI. "Implementation and Analysis of Parallel Logic Programming and Concurrent Constraint Systems," \$27,000 (International Travel only). **National Science Foundation (NSF)** under National Science Foundation (NSF)-Esprit collaboration program. 1995-99.
23. Co-PI. "WEB-KLIC: A Concurrent Logic-based Unified Framework for Programming the Internet," **AITEC**, Japan, 1997-99, 3.0 Million Yen (approx \$27,000). Co-PI: Enrico Pontelli.
24. PI. "And-Or Parallel Execution of Logic Programs: A Stack Copying Approach," **National Science Foundation (NSF)** (Research Initiation Award), \$90,000, 6/1/92-5/31/96.
25. Co-PI. "Laboratory for Logic and Databases," **National Science Foundation (NSF)** (Human Resource Development Directorate), \$349,190, 1993-1996, other PI: Dr. Hector J. Hernandez.
26. PI. "Towards an Efficient Implementation of Extended Andorra Model," \$65,000, 10/1/92-9/30/94, **Sandia National Labs.**
27. PI. "Parallel AI and Logic Programming," **Oak Ridge National Laboratories Junior Faculty Enhancement Program**, \$5,000, 6/4/92-6/4/93 (10 funded out of 128 applications).
28. PI. "MAPLE: Multiprocessors And Parallel Logic Program Execution," **NATO Collaborative Research Grant**, Brussels, \$13,500, co-PIs: D.H.D. Warren (U. of Bristol, UK), M. Hermenegildo (U. of Madrid, Spain), V. S. Costa (U. of Oporto, Portugal): Travel Only, 1/1/93-12/31/97.

PROFESSIONAL ACTIVITIES

- **FLoC Workshop Chair:** Federated Logic Conferences, 2006, Seattle (manage 41 workshops part of FLoC'06).
- **FLoC Workshop Co-chair,** Application of Logic Programming to Semantic Web and Web Services (ALPSWS), Seattle, 2006.
- **FLoC Workshop Co-chair,** Multivalued Logic Programming and Applications (MVLPA), Seattle, 2006.
- **Program Co-chair:** 21st International Conference on Logic Programming, 2005, Sitges, Spain.
- **Track chair:** Software Engineering Track. 2nd International Conference on Distributed Computing and Internet Technology. 2005. Bhubaneswar, India.
- **Executive Committee Member:** Association for Logic Programming, 2003-2007.
- **Board Member:** European Association for Programming Languages and Systems. 2001-2006.
- **Conference Coordinator:** Association for Logic Programming
- **Principal Organizer:** 2nd Compulog Americas/ALP Summer School in Computational Logic, Dallas, TX, June 14-17, 2004. <http://www.cs.utdallas.edu/~gupta/summerschool>. Co-organizers: E. Pontelli, H. Guo.
- **Invited Participant:** NSF workshop on "Broadening Participation in Computer Science Research" to launch an NSF Program by the same name.
- **General Chair:** 1st Int'l Workshop on Practical Aspects of Declarative Languages (San Antonio, TX, Proc. published by Springer Verlag as LNCS 1551)
- **General Chair:** 2nd Int'l Symposium on Practical Aspects of Declarative Languages, Boston, 2000. Proceedings published by Springer Verlag, LNCS 1753.
- **General Chair:** 3rd Int'l Symposium on Practical Aspects of Declarative Languages, Las Vegas, 2001. Proceedings by Springer Verlag, LNCS 1990.
- **General Chair:** 4th Int'l Symposium on Practical Aspects of Declarative Languages, Portland, OR, 2002. Proceedings by Springer Verlag, LNCS 2257.
- **General Chair:** 5th Int'l Symposium on Practical Aspects of Declarative Languages, New Orleans, LA, 2003. Proceedings by Springer Verlag, LNCS 2562.
- **General Chair:** 6th Int'l Symposium on Practical Aspects of Declarative Languages, Dallas, TX, 2004. Proceedings by Springer Verlag, LNCS 3057.
- **General Chair:** 7th Int'l Symposium on Practical Aspects of Declarative Languages, Long Beach, CA, 2004. Proceedings by Springer Verlag, LNCS 3351.
- **Editorial Board Member:** Journal of Logic Programming. Elsevier Science Publishers. 1998-2000.
- **Editorial Board Member:** Theory and Practice of Logic Programming. Cambridge University Press. 2000 onwards.
- **Co-Organizer:** CL2000 Workshop on (Constraint) Logic Programming and Software Engineering, London, July 2000.
- **Organizer:** NSF PIs' Workshop for the Research Infrastructure (RI) Program and the Minority Institutions Infrastructure (MII) program. August 8-9, 1999 (Las Cruces, NM).

- **Founder and Organizer:** First COMPULOG AMERICAS Summer School on Constraint Logic Programming August 1-6, 1999 (Partially funded by the NSF). <http://www.cs.msu.edu/~complog/summerschool>.
- **Co-founder and Co-coordinator:** COMPULOG AMERICAS organization. COMPULOG AMERICAS is a network of research groups in logic and constraint programming. Visit <http://www.cs.msu.edu/~complog>
- **Conference Chair:** 16th International Conference on Logic Programming. Las Cruces, NM, Dec. 1999. Visit <http://www.cs.msu.edu/~complog/conferences/iclp99>
- **Program Chair:** First International Workshop on Practical Applications of Declarative Languages, 1999. San Antonio, TX. Proceedings published as Springer Verlag LNCS 1551.
- **Invited Speaker:**
 - Workshop on Declarative Languages for Multicore Architectures, Jan 15, 2006. Charleston, SC. (Also an invited panelist.)
 - Workshop on Logical Spreadsheets, Sep 24, 2005. Stanford University, Palo Alto, CA.
 - International Conference on Information Technology (CIT), Hyderabad, Dec. 2004.
 - Workshop on Strategic Directions for Logic Programming, Apr 1998 (Shakertown, KY).
 - 1997 Joint Conference on Declarative Languages June 1997 (Grado, Italy).
- **Program Committee Memberships:**
 - ◊ FLoC'06 Workshop on Software Verification and Validation, Seattle, 2006.
 - ◊ FLoC'06 Colloquium on Implementation of Constraint and Logic Programming Systems (CICLOPS), Seattle, 2006.
 - ◊ FLoC'06 Workshop on Logic Programming Environment (WLPE), Seattle, 2006.
 - ◊ 8th International Conference on Practical Applications of Declarative Languages 2007 (Nice, France)
 - ◊ 10th Colloquium for Information Systems Security Education, CISSE 2006 (Baltimore, MD);
 - ◊ 2nd Int'l Workshop on Automated Specification and Verification of Web Systems, WWW 2006 (Cyprus);
 - ◊ 8th International Conference on Practical Applications of Declarative Languages 2006 (Charleston, SC);
 - ◊ 2nd International Conference Distributed Computing and Internet Technology (Software Track Chair), 2005.
 - ◊ 2005 ACM Symposium on Dynamic Languages, San Diego, USA.
 - ◊ 2005 Logic Programming Synthesis and Transformation (LOPSTR), 2005, London, UK.
 - ◊ 2005 Principles and Practice of Declarative Programming (PPDP), Lisbon, 2005.
 - ◊ 1st International Conference Distributed Computing and Internet Technology (Software Track), 2004.

- 6th International Conference on Practical Applications of Declarative Languages 2003 (Dallas, TX);
- 5th International Conference on Practical Applications of Declarative Languages 2002 (Portland, OR);
- 13th Euromicro Workshop on Parallel and Distributed Processing, 2004.
- 20th International Conference on Logic Programming, 2002. Copenhagen, Denmark.
- 8th International Conference on Computers Helping People with Special Needs (ICCHP), 2004,
- 2004 Logic Programming Synthesis and Transformation (LOPSTR), 2004. Verona, Italy.
- 11th Portuguese Conference on Artificial Intelligence (EPIA 03).
- 2003 Logic Programming Synthesis and Transformation (LOPSTR), 2003, Uppsala, Sweden.
- ACM Workshop on Partial Evaluation and Semantics based Program Manipulation, 2003.
- 8th International Conference on Computers Helping People with Special Needs (ICCHP), 2002. Linz, Austria.
- 4th International Conference on Practical Applications of Declarative Languages 2002 (Portland, OR);
- 18th International Conference on Logic Programming, 2002. Copenhagen, Denmark.
- IEEE International Conference on Tools for AI 2001.
- 9th Euromicro Workshop on Parallel and Distributed Processing, 2001.
- Functional and Logic Programming Systems (FLOPS), 2001 (Japan).
- International Static Analysis Symposium 1999 (Venice);
- International Conference on Logic Programming 1999 (Las Cruces, NM);
- International Conference on Practical Applications of Constraints and Logic Programming 2000 (London);
- Practical Applications of Declarative Languages 2000 (Boston, MA);
- Practical Applications of Declarative Languages 1999 (San Antonio, TX);
- International Conference on Practical Applications of Constraints and Logic Programming 1999 (London);
- Hungarian-Austrian Workshop on Distributed and Parallel Systems, Hungary, July 2000.
- Brazilian Symposium on Computer Architecture and High Performance Computing 1999 (Natal, Brazil);
- 8th Euromicro Workshop on Parallel and Distributed Processing 2000 (Rhodes, Greece);
- International Conference on Practical Applications of Prolog 1998 (London);
- International Logic Programming Symposium 1997 (Stony Brook, NY);
- International Conference and Symposium on Logic Programming Bonn 1996 (Bonn).

- Germany);
- International Logic Programming Symposium 1994 (Ithaca, NY);
- International Logic Programming Symposium 1993 (Vancouver, BC);
- National Science Foundation/ICOT (Institute for Fifth Generation Computer Technology, Japan) Workshop on Parallel Processing 1994 (Eugene, OR);
- International Conference on Logic Programming 1993 (Budapest, Hungary).
- **Invited Panelist:**
 - Workshop on Declarative Languages for Multicore Architectures, Jan 15, Charleston, SC. Panel on Lessons from the Past and What it Means for Multicores.
 - International Conference on Logic Programming. Mumbai, India, 2003. Panel: Teaching Logic Programming in the Class Room.
 - International Conference on Logic Programming. Cyprus. 2001. Panel: Future Challenges in Logic Programming.
 - IEEE Conf. on High Assurance Software Engineering. 2000. Panel: Do formal methods really belong in the toolbox of a practicing engineer?
 - NSF, Proposal Evaluation for Research Instrumentation Program, 1998.
 - Discussion Panel on Strategic Directions for Logic Programming Research, 1997 Joint Conference on Declarative Languages (Grado, Italy, June 1997);
 - Discussion Panel on "Future Directions in Parallel Logic Programming Research" in Workshop on Parallel and Distributed Logic Programming (Washington DC., 1992).
- **Session Chair:**
 - International Conference on Practical Aspects of Declarative Languages 1999-2005;
 - International Conference on Logic Programming 2004;
 - International Conference on Logic Programming 1999;
 - Joint International Conference and Symposium on Logic Programming 1996;
 - International Logic Programming Symposium 1994;
 - International Conference on Logic Programming 1993 (Budapest, Hungary).
- **Panel Organizer and Chair:**
 - International Conference on Logic Programming 1993 (Budapest, Hungary);
 - Practical Aspects of Declarative Languages 1999.
- **Guest Editor:**
 - Special issue of the Journal of Logic Programming on High Performance Implementations of Prolog, 1996 (with Mats Carlsson of Swedish Institute of Computer Science);
 - Special issue of the Journal of Functional and Logic Programming, MIT Press (with E. Pontelli and V. Santos Costa);
 - Volume on "Parallel and Implementation Technologies," Nova Science Publishers, 1999.
- **Project Consultant:**

- ◊ Project Insight (to Logical Software Solutions, Dept. of Education and NSF SBIRs).
- ◊ Project Melodia (at the University of Oporto, Portugal, funded by the Portuguese Government);
- ◊ Project Appelo (at the Federal University of Rio de Janeiro, Brazil, funded by the Brazilian Government).
- **Workshop Organizer:**
 - ◊ Parallel Logic Programming Workshop, Las Cruces, NM, 1993 (funded by NATO);
 - ◊ Post-conference Workshop on Parallel Logic Programming, International Logic Programming Symposium (Oct, 1991, San Diego, CA),
 - ◊ Post-conference Workshop on Parallel Logic Programming, International Logic Programming Symposium (Nov. 1994, Ithaca, NY);
 - ◊ Pre-conference Workshop on Parallel Logic Programming, International Conference on Logic Programming (June, 1991, Paris, France; Proceedings published by Springer Verlag, Lecture Notes in Computer Science 569).
 - ◊ Birds-of-a-feather session on "Logic Programming as an Introductory Programming Paradigm" (report on the session appears in Association for Logic Programming Quarterly Newsletter Feb. 1993).
- **Invited Tutorial:**
 - ◊ Tutorial speaker on Constraint Logic Programming and its Applications on Recent Advances in Programming Languages, Preconference workshop with Foundations of Software Technology and Theoretical Computer Science, Dec. 2000, (New Delhi, India).
 - ◊ Tutorial on Parallel Logic Programming, International Conference on Logic Programming 1993 (Budapest, Hungary).
- **Thesis examiner** for a Ph.D. thesis at the
 - ◊ University of Melbourne, Australia,
 - ◊ SUNY Stony Brook.
- **Reviewing Activities:** Reviewed articles for:
 - ◊ Parallel Processing Conferences
 - ◊ International Conference on Parallel Processing (ICPP)
 - ◊ International Parallel Processing Symposium (IPSS)
 - ◊ Symposium on Parallel and Distributed Processing (SPDP),
 - ◊ Parallel Architecture and Languages Europe (PARLE),
- Logic Programming Conferences:
 - ◊ International Conference on Logic Programming (ICLP),
 - ◊ North American Conference on Logic Programming (NACLP),
 - ◊ International Logic Programming Symposium (ILPS),
 - ◊ Programming Language Implementation and Logic Programming (PLILP),
 - ◊ Principles and Practice of Declarative Programming (PPDP).
- Other Conferences:
 - ◊ Principles of Programming Languages,
 - ◊ IEEE Realtime Systems Symposium

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- ◊ Practical Aspects of Declarative Languages Symposium
 - ◊ IEEE Tools in Artificial Intelligence,
 - ◊ Portuguese conference on AI
- Journals:
- ◊ Journal of Logic Programming
 - ◊ ACM Transactions on Programming Languages and Systems (TOPLAS)
 - ◊ Software Practice and Experience
 - ◊ Computer Journal
 - ◊ IEEE Computer
 - ◊ Journal of Computer and System Sciences
 - ◊ IEEE Parallel and Distributed Technology
 - ◊ IEEE Transactions on Parallel and Distributed Systems
 - ◊ IEEE Transactions on Mobile Computing
 - ◊ Information Processing Letters
 - ◊ Science of Computer Programming
 - ◊ Journal of Computing and Information Technology
- Funding Agencies:
- ◊ US National Science Foundation
 - ◊ Austrian Science Foundation
 - ◊ Irish National Science Foundation.
- **TALKS:** More than 40 talks, including several invited, at various conferences and Universities in Europe, Asia, and the Americas.
 - **Participant:** the 1987 Summer School on Parallel Processing (Argonne National Laboratory) [25 applicants selected out of 125].

PROFESSIONAL AFFILIATIONS

- Member, Association for Computing Machinery (ACM), since 1988.
- Member, Association for Logic Programming (ALP), since 1988.
- Member, ACM Special Interest Group on Prog. Lang. (SIGPLAN), since 1988.
- Member, ACM Special Interest Group on Software Engineering (SIGSOFT), since 1998.

PAST/PRESENT COLLABORATORS

- Dr. Ken Bowen (Advanced Logic Systems, Newton, MA)
- Dr. Khayri Ali (Swedish Institute of Computer Science, Sweden)
- Dr. Tony Beaumont (University of Bristol, UK)
- Dr. Mats Carlsson (Swedish Institute of Computer Science, Sweden)
- Dr. Doug Gillan (New Mexico State Univ., Psychology)
- Dr. Neil Jones (University of Copenhagen, Denmark)

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- Dr. Michael Leuschel (Southampton University, UK)
- Dr. Manuel Hermenegildo (Politecnica de Madrid, Spain)
- Dr. Brook Milligan (New Mexico State Univ., Biology)
- Dr. Manuel Carro (Politecnica de Madrid, Spain)
- Dr. Bharat Jayaraman (SUNY-Buffalo, USA)
- Dr. Feliks Kluzniak (University of Warsaw, Poland)
- Dr. Vitor Santos Costa (University da Oporto, Portugal)
- Dr. David H. D. Warren (University of Bristol, UK)
- Dr. Roug Yang (University of Bristol, UK)
- Dr. Kish Shen (University of Manchester, UK)
- Dr. Inés Dutra (Universidade Federal do Rio de Janeiro, Brazil)
- Dr. Claudio Geyer (Universidad Federal do Rio Grande del Sul, Brazil)
- Dr. Janyce Wiebe (University of Pittsburgh)
- Francesco Pulverenti (University of Padova, Italy)

STUDENTS SUPERVISED

Ph.D.

- Enrico Pontelli, graduated Aug. '97, Ph.D. Thesis: Design, Analysis, and Implementation of Parallel Logic Programming Systems (employed as Professor of Computer Science at NMSU; awarded NSF CAREER grant);
- Haifeng Guo (Ph.D. Thesis: Distributed and Tabled Logic Programming System. Oct. 2000 (currently Assistant Professor, University of Nebraska at Omaha).
- Karen Villaverde (Ph.D. Thesis: Scalable Parallel Implementations of Logic Programming Systems on a Beowulf; Enrico Pontelli was formal supervisor).
- Luke Simon (Ph.D. Thesis: Co-Inductive Logic Programming; August 2006 (currently, with Metalect Corp).
- Ajay Mallya (Ph.D. Thesis: Deductive Multi-valued Model Checking; August 2006 (currently, Senior Programmer, Amazon.com).
- Qian Wang (Ph.D. Thesis: Semantic Framework for Integrating Software Architecture Description Languages; expected May 2006).
- Michael Nichols (Ph.D. Thesis: Voice-commanded Scripting Languages for Programming Navigation Strategies On-the-fly)
- Ajay Bansal (Ph.D. Thesis: Next Generation Logic Programming Systems)
- Srividya Kona (Ph.D. Thesis: Automated Discovery and Composition of Web Services)
- Richard Min (Ph.D. Thesis: Goal directed Execution of Answer Set Programs); May 2008.

M.S. Parag Doshi (expected 12/07), Shrirang Khisti (expected 12/08), Aanchal Jain (Tektronix), Siddharth Chitnis (Qualcomm), Ramya Reguramalingam (Amazon.com), Sri-ram Sunderraman (Qualcomm), Madhu Yennamani (Novomatic), Ramakrishnan Venki-

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taraman (QualComm), Kunal Patel (Network Inference), Vinay Ahuja (Inteligencia), Hemamber Reddy (Metalect) Narayan Annamalai (Intervoice), X. Zhou (Sabre), C. Cheng (Cadence Design), N. Datta (Synopsis, Inc.), H. Guo (NSF Postdoc fellow, SUNY Stonybrook), S. Akhter (Intel), F. Bassetti (Los Alamos), J. Mendez (Texas Utilities), J. Bang (Ph.D. student at Imperial College, London), Rick Vaupel (Lockheed), Haren Babu (Sequent Corp.), Greg Luce (employment info. u/a).

— Also supervised overseas students: Francesco Pulverenti 1997 (Masters student at University of Catania, Italy; currently a Ph.D. student at Univ. of Padova), Paolo Frigo 1996 (Ph.D. student at University of Siena, Italy).

PATENT, TECHNOLOGY TRANSFER & CONTRACTS

1. Development of a Universal Services Description Language (USDL). Technology Transfer Agreement with Metalect, Inc.
2. Technology transfer agreement with ALS, Inc., for building a parallel logic programming system based on the ALS (constraint) logic programming system. (with E. Pontelli, H-F. Guo, K. Villaverde)
3. Contract with College of Arts & Sciences, NMSU, to design, implement, and install a logic programming based system for automated checking of graduation requirements (degree audit). (with Arthur Karshmer). 1998-1999.

SOFTWARE SYSTEMS DEVELOPED BY MY GROUP

1. An Interpreter for EqL: EqL is an equational language.
2. ACE: A High Performance Parallel Prolog System implemented on top of SICStus Prolog
3. VACE: A tool for visualizing and-or parallel execution of logic programs.
4. KnowledgeSheet: A Spread-sheet based tool for solving constraint satisfaction problems.
5. Nemeth to Latex Backtranslator: A system for converting Nemeth Math Braille document to Latex (undergoing alpha testing).
6. PALS: Parallel ALS, a distributed logic programming system based on the commercial ALS Prolog system.
7. TALS: Tabled ALS, a tabled logic programming system based on the commercial ALS Prolog system.
8. TA Scheduler: A resource allocation system for matching teaching assistants to courses based on skills, instructor preferences, etc.
9. Executable RDF/RDQL: A semantic web inference system for executing RDQL queries on RDF coded data.
10. HTML/VXML Transcoder: A system for automatically translating HTML to VoiceXML for aural access.

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11. Dynamic VXML Navigator: A system for aurally navigating voice/audio documents.

PUBLICATIONS

Refereed Journal Publications:¹

1. H-F. Guo, G. Gupta. Simplifying Dynamic Programming via Mode-directed Tabling. *Software Practice and Experience* (to appear).
2. E. Pontelli, K. Villaverde, H. Guo, G. Gupta. . *Journal of Theory and Practice of Logic Programming*. 2006. to appear. 63 pages.
3. E. Pontelli, K. Villaverde, H. Guo, G. Gupta. Stack Splitting: a Technique for Efficient Exploitation of Search Parallelism on Share-nothing Platforms. *Journal of Parallel and Distributed Computing*. 2006. pp. 1267-1293.
4. E. Pontelli, D. Ranjan, G. Gupta, B. Milligan. Design and Implementation of a Domain Specific Language for Phylogenetic Inference. *Journal of Bioinformatic and Computational Biology*. 1(2):2003. pp. 201-230.
5. E. Pontelli, D. Gillan, G. Gupta, A. Karshmer, E. Saad, W. Xiong. Intelligent non-visual navigation of complex HTML structure. *International Journal: Universal Access in the Information Society*. Vol 2, No. 1, Nov. 2002.
6. F. Harary, G. Gupta, "A Constraint Logic Programming Approach for Generating All Perfect Matchings," *Applied Mathematics Letters*. 2002.
7. G. Gupta, E. Pontelli, K. Ali, M. Carlsson, M. Hermenegildo, Parallel Execution of Prolog Programs: A Survey. In *ACM Transactions on Programming Languages and Systems*, Vol 23, No. 4, pp. 472-602.
8. G. Gupta and E. Pontelli. Optimization Schemas for Parallel Implementation of Non-deterministic Languages. In *Software Practice and Experience* Vol 31, pp. 1143-1181. 2001.
9. E. Pontelli and G. Gupta. Backtracking in Independent And-Parallel Implementations of Non-Deterministic Languages. In *IEEE Trans. on Parallel and Distributed Computing*, 12(11):1169-1189, Nov. 2001.
10. D. Ranjan, E. Pontelli, L. Longpre, and G. Gupta. The Temporal Precedence Problem. In *Algorithmica*, Vol 28, No. 3, pp. 288-306. Nov. '00.
11. D. Ranjan, E. Pontelli, G. Gupta. "Data Structures for Order-sensitive Predicates in Parallel Non-deterministic Languages. *Acta Informatica*. 37(1): 21-43 (2000).
12. E. Pontelli, D. Ranjan, G. Gupta. "Complexity of Late-binding in Dynamic Object-Oriented Languages," In *Journal of Functional and Logic Programming*, MIT Press, Special Issue #2, 1999.

¹All invited papers went through the regular reviewing process of the journal they appeared in.

13. D. Ranjan, E. Pontelli, and G. Gupta. "On the Complexity of Or-parallelism," In *New Generation Computing: An International Journal* Vol. 17, No. 3, May 1999.
14. E. Pontelli and G. Gupta. "Extended Dynamic Dependent And-parallelism," *Journal of Functional and Logic Programming*, Special Issue #1, 1999, MIT Press.
15. A. Karshmer, G. Gupta, et al. "Reading and Writing Mathematics: The MAVIS Project," In *Behavior and Information Technology*, invited paper, 1999 18(1):2-10.
16. D. Ranjan, E. Pontelli, G. Gupta. Efficient Algorithms for the Temporal Precedence Problems. *Information Processing Letters*. 68(2):71-78, 1998.
17. F. Harary and G. Gupta, "On Dynamic Graph Models." In *Computer and Mathematical Modeling*, 25(7):79-87, 1997.
18. E. Pontelli and G. Gupta, "Parallel Symbolic Computation with ACE," invited paper, In *Annals of Artificial Intelligence and Mathematics*, 21 (1997) 359-395, Dec. '97.
19. E. Pontelli, G. Gupta, D. Tang, M. Hermenegildo, M. Carro, "Improving the Efficiency of Non-deterministic Independent And-parallel Logic Programming Systems," invited paper, *Journal of Computer Languages*, Vol. 22, No. 2-3, pp. 115-142, Oct. 1996.
20. D. Tang and G. Gupta, "A Parallel Dynamic Programming Algorithm," *Journal of Computers and Mathematics with Applications*, Pergamon Press Vol 30, No. 8, pp. 65-74, 1995.
21. G. Gupta, V. Santos Costa, "Cuts and Side-effects in And-Or Parallel Prolog," *Journal of Logic Programming*, Vol. 27(1), April 96, 45-71.
22. G. Gupta and V. Santos Costa, "Optimal Implementation of And-Or Parallel Prolog," invited paper (selected papers from PARLE'92: Parallel Architectures and Languages Europe), *Journal of Future Generation Computer Systems*, Vol 10, No. 1 pp. 71-92, Elsevier Science Publishers, Apr. 1994.
23. G. Gupta, M. Hermenegildo, V. Santos Costa, "And-Or Parallel Prolog: A Recomputation Based Approach," invited paper (selected papers from International conference on Fifth Generation Computer Systems 1992), *New Generation Computing: An International Journal*, Vol. 11 (3,4), June 1993, pp. 298-321.
24. G. Gupta and B. Jayaraman "AO-WAM : A WAM Extension for Compiled And-Or Parallelism," *Journal of Logic Programming*, Vol. 17, No. 1, Oct. 1993, pp. 59-89.
25. G. Gupta and B. Jayaraman "Analysis of Or-parallel Execution Models," *ACM Transactions On Programming Languages and Systems (ACM TOPLAS)*, Vol 15, No. 4, September 1993, pp. 659-680.
26. G. Gupta, "Dynamic Parallel Evaluation of Cross-product Sets," *Information Processing Letters* Vol. 44, No. 5 (1992) 273-280.
27. B. Jayaraman and G. Gupta, "EQL : The Language and its Implementation," *IEEE Transactions on Software Engineering*, Vol. 15, No. 6, June, 1989, pp. 771-780.

Books and Compendia

28. Tony Beaumont, G. Gupta (editors), "Proceedings of the ICLP '91 Pre-conference workshop on Parallel Execution of Logic Programs," Lecture Notes in Computer Science 569, Springer Verlag, Dec. 1991.
29. G. Gupta, "Multiprocessor Execution of Logic Programs," Kluwer Academic Publishers, Norwell, MA, Oct. 1994.
30. G. Gupta (editor), "Practical Aspects of Declarative Languages," Springer Verlag, Lecture Notes in Computer Science 1551, Jan. 1999.
31. G. Gupta and Mats Carlsson (editors), "High Performance Implementations of Logic Programming Systems," Special Issue, Journal of Logic Programming, Vol. 29(1-3), Nov. 96.
32. V. Santos Costa, E. Pontelli, G. Gupta (editors), "Implementation of (Constraint) Logic Programming Systems," Special Issue, Journal of Functional and Logic Programming, Special Issue #1, 1999, MIT Press, May '99.
33. V. Santos Costa, E. Pontelli, G. Gupta (editors), "Implementation and Constraint Technologies," Nova Science Publishers (Commack, NY), 1999.
34. Maurizio Gabbriellini, G. Gupta (editors), "21st International Conference on Logic Programming," Springer Verlag LNCS. 2005.
35. G. Gupta, E. Pontelli, "Specification, Implementation, and Verification of Domain Specific Languages: A Logic Programming-based Approach," Advances in Logic Programming, Essays in honor of 60th birthday of Robert Kowalski. Lecture Notes in Computer Science. Springer Verlag LNAI 2407, pp. 211-239.
36. G. Gupta, E. Pontelli, "ACE: A High Performance Parallel Prolog System," Proceedings of Joint Conference on Declarative Programming, June 1997, pp. 25-31.
37. G. Gupta "Horn Logic Denotations and Their Applications," *The Logic Programming Paradigm: A 25 year perspective* Springer Verlag, pp. 127-160. (Proceedings of Workshop on Current trends and Future Directions in Logic Programming Research, April '98).
38. A. Karshmer, E. Pontelli, G. Gupta. Non-visual WWW browsing. *HCI International Conference*, 1999.
39. G. Gupta. Reliable Software Construction: A Logic Programming Based Methodology. High Assurance Systems Engg. Conf. 2000, Albuquerque, NM.
40. G. Gupta, V. Santos Costa, E. Pontelli. Shared Paged Binding Array: A Universal Data-structure for Parallel Logic Programming. In *Proc. NSF/ICOT workshop on Parallel Logic Programming*, T. Chikayama and E. Tick (Eds). University of Oregon CIS-TR-94-04, Mar. 1994.

Refereed Conference Publications

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41. Aanchal Jain, Gopal Gupta. VoxBox: A System for Automatic Generation of Interactive Talking Books. Proceedings of HCI 2007. 2007. To appear.
42. D. Gopal, Q. Wang, G. Gupta, S. Chitnis, H. Guo, A. Karshmer. Towards completely automatic Nemeth code to *WTeX* backtranslation. In *HCI 2007*. To appear.
43. L. Simon, A. Mallya, A. Bansal, G. Gupta. Coinductive Logic Programming. In *Proc. Int'l Conference on Logic Programming*. 2006. to appear.
44. A. Bansal, S. Kona, L. Simon, A. Mallya, G. Gupta, T. Hite. A Universal Service-Semantics Description Language. In *Proc. European Conference on Web Services*. 2005. pp. 1-15.
45. L. Simon, A. Mallya, G. Gupta. *Ar*: A Real Time Action Description Language. In *Proc. LOPSTR 2005*. Lecture Notes in Computer Science. Springer Verlag. LNCS 3901. pp. 44-60.
46. A. Bansal, K. Patel, G. Gupta, B. Raghavachari, J. Staves, D. Harris. Towards Intelligent Services: A Case Study in Chemical Emergency Response. In *International Conference on Web Services*, IEEE Press. Jun 2005. pp. 751-758.
47. L. Simon, A. Mallya, A. Bansal, S. Kona, G. Gupta, T. Hite. Towards a Universal Services Description Language. In *International Conference on Next Generation Web Services Practices*. IEEE Press. Aug 2005. pp. 1-6.
48. H-F Guo, B. Jayaraman, G. Gupta, M. Liu. Optimization with Mode-Directed Preferences. In *ACM Conference on Principles and Practice of Declarative Programming*. 2005. ACM Press. pp. 242-251.
49. M. Nichols, Q. Wang, G. Gupta. A VoiceXML-based Spoken Scripting Language for Voice-based Web Navigation. In *Human Computer Interaction Conference*, July 2005. Lawrence Erlbaum and Associates. 8 pages.
50. G. Gupta, S. Sunder Raman, M. Nichols. DAWN: Dynamic Aural Web Navigation. In *Human Computer Interaction Conference*, July 2005, Lawrence Erlbaum and Associates. 8 pages.
51. H. Reddy, G. Gupta, A. Karshmer. Dynamic Aural Browsing of MathML Documents with VoiceXML. In *Human Computer Interaction Conference*, July 2005, Lawrence Erlbaum and Associates. 8 pages. **Invited paper.**
52. Qian Wang, G. Gupta. Rapidly Prototyping Implementation Infrastructure of Domain Specific Languages: A Semantics-based Approach. ACM Symposium on Applied Computing 2005. ACM Press. pp. 1419-1426.
53. Qian Wang, G. Gupta, M. Leuschel. Towards Provably Correct Code Generation via Horn Logical Continuation Semantics. in *Proc. International Conf. on Practical Aspects of Declarative Languages 2005*. Springer Verlag. LNCS 3350. pp. 98-112. 2005.
54. R. Venkataraman, G. Gupta. Static Analysis of Code Binaries for Software Reuse. In *Proc. 1st International Conference on Distributed Computing and Internet Technology (ICDIT 2004)* Bhubaneswar, India. Lecture Notes in Computer Science, Springer Verlag, Dec. 2004. pp. 283-293.

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55. R. Venkiresan, G. Gupta. Static Program Analysis of Embedded Executable Assembly Code. In *Proc. 7th International Conference on Compilers, Architectures, and Synthesis of Embedded Systems (CASES)*, ACM Press, 2004, pp. 157-164.
56. A. Karshmer, G. Gupta, K. Miesenberger, E. Pontelli, H. Guo, et al. UMA: A System for Universal Mathematics Accessibility. In *Proc. ACM International Conference on Assistive Technology*, 2004, pp. 55-62.
57. Hai-Feng Guo, G. Gupta. Simplifying Dynamic Programming via Tabling. In *Proc. Sixth International Conference on Practical Aspects of Declarative Languages*, 2004, pp. 163-177.
58. N. Annamalai, G. Gupta, B. Prabhakaran. An Extensible Translator for translating HTML to VoiceXML. In *Proc. 9th International Conference on Computers Helping People*. Springer LNCS 3118. Paris, France, 2004, pp. 339-346.
59. H. Reddy, N. Annamalai, G. Gupta. Dynamic Navigation of VoiceXML documents. In *Proc. 9th International Conference on Computers Helping People*. Springer LNCS 3118. Paris, France, 2004, pp. 337-354.
60. D. Archambault, D. Fitzpatrick, G. Gupta, A. Karshmer, K. Miesenberger, E. Pontelli: Towards a Universal Maths Conversion Library. In *Proc. 9th International Conference on Computers Helping People*. Springer LNCS 3118. Paris, France, 2004, pp. 664-669.
61. Q. Wang, G. Gupta. Provably Correct Code Generation: A Case Study in SCR. 2003 Logic Program Synthesis and Transformation Conference. Uppsala, Sweden.
62. K. Patel, G. Gupta. Semantically Processing the Semantic Web. 3rd International Semantic Web Conference, 2003. Springer LNCS 2870, pp. 80-95.
63. K. Villaverde, E. Pontelli, H-F. Guo, G. Gupta. A Methodology for the Management of Order-sensitive Execution of Non-deterministic Languages on Beowulf Platforms. European Conference on Parallelism, 2003. Springer LNCS 2790, pp. 694-703.
64. N. Annamalai, D. Gopal, G. Gupta, A. Karshmer, H. Guo. INSIGHT: A Comprehensive System for Translating Braille based Mathematical Documents to E²TeX. In *Proc. 2003 International Conf. on Human Computer Interaction (HCI'03)*, Crete, Greece, pp. 1245-1249.
65. C. T. Son, E. Pontelli, D. Ranjan, B. Milligan, and G. Gupta. An Agent-based Domain Specific Framework for Rapid Prototyping of Applications in Evolutionary Biology. In *Proc. 2003 Declarative Agent Languages and Technologies Workshop*. Springer Verlag, Lecture Notes in Artificial Intelligence, pp. 76-96.
66. E. Pontelli, G. Gupta, D. Ranjan, B. Milligan. Logic Programming and Domain Specific Languages: A Case Study for Phylogenetic Inference Problems. In *Proc. First IEEE Computer Society Bioinformatics Conference*, Aug. 2002. (to appear).
67. A. Karshmer, G. Gupta, D. Gillan. Architecting an Auditory Browser for Navigating Mathematical Expressions. In *Proc. International Conf. on Computers Helping People (ICCHP)*, 2002. Springer Verlag LNCS 2398, pp. 477-486.

68. E. Pontelli, A. Karshmer, G. Gupta, D. Gillan, E. Saad, W. Xiong. Intelligent Non-Visual Navigation of Complex HTML Structures. In *Proc. ACM Conference on Assistive Technology*, ACM Press 2002, to appear.
69. G. Gupta, H-F. Guo, A. Karshmer, E. Pontelli, et al. Semantic-Based Filtering: Logic Programming's Killer App? 4th International Symposium on Practical Aspects of Declarative Languages, LNCS 2257, Springer Verlag, pp. 82-100, Jan. 2002.
70. H-F Guo, G. Gupta. A Simple Technique for Implementing Tabling based on Dynamic Reordering of Alternatives. *Proc. 17th Int'l Conf. on Logic Programming*, Pappos, Cyprus, Springer Verlag LNCS 2237, pp 181-198.
71. K. Villaverde, H. Guo, E. Pontelli, G. Gupta. High Performance (Constraint) Logic Programming on the Beowulf Architecture. *Proc. 17th Int'l Conf. on Logic Programming*, Pappos, Cyprus, Springer Verlag LNCS 2237, pp 27-42.
72. K. Villaverde, H. Guo, E. Pontelli, G. Gupta. Incremental Stack-Splitting Mechanisms for Efficient Parallel Implementation of Search-based AI Systems *Proc. 30th Int'l Conf. on Parallel Processing*, Valencia, Spain, 2001, pp. 55-79.
73. J. R. Iglesias, G. Gupta, E. Pontelli, D. Ranjan, B. Milligan. Interoperability between Bioinformatics Tools: A Logic Programming Approach. In *3rd Symposium on Practical Aspects of Declarative Languages*, 2001. Springer Verlag LNCS 1990, pp. 153-168, 2001.
74. E. Pontelli, W. Xiong, A. Karshmer, G. Gupta. A Domain Specific Language Framework for Non-Visual Browsing of Complex HTML Structures. *Proc. ACM Conference on Assistive Technologies (ASSETS'00)*, Nov. '00.
75. G. Gupta. Building the Tower of Babel: Converting XML to VoiceXML for Accessibility. *Proc. 7th International Conference on Computers Helping People with Special Needs (ICCHP00)*. OCG Press (Austria), pp. 267-272.
76. H-F Guo, G. Gupta, et al. Computer Processing of Nemeth Braille Math Notation. 7th OCG Press (Austria), pp. 319-328.
77. L. King, G. Gupta, E. Pontelli. Verification of a Controller for BART: An Approach based on Horn Logic and Denotational Semantics. In *High Integrity Software Systems*. Kluwer Academic Publishers.
78. G. Gupta, S. Akhter. KnowledgeSheet: A Graphical Spreadsheet Interface for Interactively Developing A Class of Constraint Programs. In *Proc. Practical Aspects of Declarative Languages*, Lecture Notes in Computer Science 1753, Springer Verlag, 2000, Jan. '00.
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88. E. Pontelli and G. Gupta. "A Constraint Logic Framework for Internet Programming." In *Proc. International Conference on Tools with AI*, IEEE Computer Society, 1997.
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91. E. Pontelli, G. Gupta. "Implementation Mechanisms for Dependent And-parallelism." In *Proc. International Conference on Logic Programming*, MIT Press, July 1997, pp. 123-137.
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100. E. Pontelli, G. Gupta. "On the Duality between Or-parallelism and And-parallelism." In *European Conference on Parallel Processing '95*, Stockholm, Sweden, Springer Verlag Lecture Notes 966, pp. 43-54.
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134. B. Jayaraman and G. Gupta, "EQL User's Guide," Technical Report 87-010, Dept. of Computer Science, Univ. of North Carolina. Chapel Hill. June '87. 30 pages.
135. G. Gupta, "An Investigation into the Relative Efficiencies of Supercombinators and Function Graphs," TR 88-054, Dept. of Computer Science, UNC Chapel Hill, Nov. '88. 17 pages.
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EDUCATION

PhD in Computer Science, August 2006
Cornell University

Master of Science in Computer Science, 2002
Cornell University

Bachelor of Science in Computer Science and Mathematical Science, 1998
Carnegie Mellon University

HONOR SOCIETIES

Phi Kappa Phi
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AWARDS & HONORS

Intel Foundation PhD Fellowship Award, Cornell University, 2004-2005.
Lockheed Martin PhD Fellowship Award, Cornell University, 1998-1999.
Allen Newell Award for Excellence in Undergraduate Research, CMU, 1998.
SCS College Honors, Carnegie Mellon University, 1998.
University Honors (QPA: 3.98), Carnegie Mellon University, 1998.
Andrew Carnegie Merit Scholarship, Carnegie Mellon University, 1994-1998
Dean's List, Carnegie Mellon University, 1994-1998.

WORK EXPERIENCE

Teaching Assistant for CS513: System Security
Computer Science Department, Cornell University
Spring 2004

Research Assistant
Chair Advisor: Dr. Greg Morrisett
Computer Science Department, Cornell University
Fall 1999; Spring, Summer, and Fall 2000-2003

Research Intern (.NET ILX SDK group)
Luca Cardelli (luca at microsoft dot com)
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Fall 2002

Technical Consultant (.NET JIT compiler research)
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Summer 2001

Teaching Assistant for CS381: Formal Languages and Automata
Computer Science Department, Cornell University
Summers 1999-2000

THESIS RESEARCH

Security Policy Enforcement by Program-Rewriting
PhD Dissertation
Computer Science Department, Cornell University
Fall 2000 – August 2006
See <http://www.utdallas.edu/~hamlen/research.html> for project overview and references.

Advisors: Dr. Greg Morrisett, Dr. Fred Schneider, Dr. Shimon Edelman

Proof-Carrying Code for x86 Architectures
Senior Honors Thesis
School of Computer Science, Carnegie Mellon University
Fall 1997 – Spring 1998
See <http://www.cs.berkeley.edu/~necula/pcc.html> for project overview and references.

Advisor: Dr. Peter Lee, Associate Professor of Computer Science at CMU
Also advised by Dr. George Necula, now Assistant Professor at Berkeley.

PUBLICATIONS

K. W. Hamlen, G. Morrisett, and F. B. Schneider
Certified In-lined Reference Monitoring on .NET
In Proceedings of the ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS), June 2006, 7-16. Also available as Cornell Computer Science Department Technical Report TR-2005-2003.
See <http://www.utdallas.edu/~hamlen/mobile.pdf> for full text.

K. W. Hamlen, G. Morrisett, and F. B. Schneider
Computability Classes for Enforcement Mechanisms
ACM Transactions On Programming Languages And Systems, 28(1), January 2006, 175-205. Also available as Cornell Computer Science Department Technical Report TR-2003-1908.
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W. Hamlen and K. W. Hamlen
A Closed System of Production Possibility and Social Welfare
Computers in Higher Education Economics Review (CHEER), 18, December 2006.
See <http://www.utdallas.edu/~hamlen/ppcurve.pdf> for full text.

SUBMITTED MANUSCRIPTS

K. W. Hamlen
Verification Is Easier When ω-Regular Expressions are Star Free
Submitted to ACM Transactions on Computational Logic, November 2006.

PRESENTATIONS

Certified In-lined Reference Monitoring on .NET
ACM SIGPLAN Workshop on Programming Languages and Analysis for
Security (PLAS)
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Security Enforcement by Program-rewriting
Intel Ph.D. Fellowship Forum Visit
Santa Clara, CA
October 20, 2004

Computability Classes for Enforcement Mechanisms
MURI PI Meeting (administered by AFOSR)
Washington D.C.
February 27, 2004

Which Security Policies Can Rewriters Enforce?
New England Programming Languages Seminar
Boston, MA
February 24, 2004

REFERENCES

Available upon request.

OTHER ACTIVITIES & INTERESTS

Study leader & pianist, Cornell International Christian Fellowship, Cornell
University, 2002-2006.
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RESUMÉ

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Research Interests:

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EDUCATION:

- Ph.D. (Computer Engineering), University of Southern California
Los Angeles, CA 6/1997
Dissertation: *WordNet-Based Inference of Textual Context, Cohesion and Coherence*
- Doctorate in Electrical Engineering and Computer Science
University of Rome TOR VERGATA, Italy 2/1994
Dissertation: *Mapping Techniques for Parallel Systems Using Simulated Annealing*
- Diploma Engineer in Computer Science and Electrical Engineering
Polytechnic Institute of Bucharest, Romania 6/1983
Dissertation: *Extending Lenal's AM to An Expert System for Discovery
in Differential Geometry*

EXPERIENCE:

- Associate Professor 1/2002-present
Jonsson School Research Initiation Chair
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 - Teach "Artificial Intelligence", "Natural Language Processing", "Discourse Processing" and "Information Retrieval"
 - PI on AQUAINT-3 grant "AQUINAS: Answering Questions Using
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- o PI of NSF CAREER Award "CAREER: Reference Resolution for Natural Language Understanding" (\$300,000).
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- o Participated in DoD-funded research projects for information extraction and information retrieval.

Research Associate

Department of Computer Science and Engineering
Southern Methodist University, Dallas, TX

- o Co-PI for Proposals submitted to National Agencies

Research Assistant

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Southern Methodist University, Dallas, TX

Research Assistant

Electrical Engineering-Systems Department
University of Southern California, Los Angeles, CA

- o Research for the National Science Foundation Grants No. MIP-9009109 and CCR-9406998

Research Fellow

Fondazione Ugo Bordonì, Rome, Italy

- o Studied the implementation of neural networks on multiprocessor architectures

Researcher

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INCREST (Romanian National Research Institute)
Bucharest, Romania

- o Developed and designed high-speed data acquisition systems for aerodynamic experiments.

Computer Engineer

INCREST (Romanian National Research Institute)
Bucharest, Romania

- o Developed an aircraft simulation system and other software used by the Turbo Engines Center

9/1983-1/1985

AWARDS

- AQUAINT-3 award "AQUINAS: Answering Questions Using Inference and Advanced Semantics", 2006-2008.
- AQUAINT-2 award "AQUINAS: Answering Questions Using Inference and Advanced Semantics", 2004-2008.
- AQUAINT award "Computational Implications for Advanced Question Answering", 2002-2005.
- National Science Foundation Faculty Early CAREER Development Award, 2000-2005.
- National Science Foundation award "CADRE: A Tool for Transforming WordNet into a Core Knowledge Base", 2000-2004.
- ARP award "Open-Domain Information Extraction", 2002-2004.
- Southern Methodist University Research Award, 1999-2000.
- Fondazione Ugo Bordonì Research Award, 1991-1993.

Professional Activities

- Organizer with Drs. Daniel Bobrow, Dan Moldovan, Christopher Manning, Srin Narayanan and Ken Forbus of the AAAI-05 Workshop on Inference for Textual Question Answering, July 9 2005, Pittsburgh, PA.
- Co-chair with Dr. David Farwell of the ACL-2004 Workshop on Reference Resolution and its Applications, Barcelona, Spain, July 2004.
- Co-instructor with Dr. Srin Narayanan of the HLT-NAACL'2004 Tutorial on Semantic Inference for Question Answering, Boston MA, May 2004.
- Co-chair with Finley Lăcătușu of the HLT-NAACL'2004 Workshop on Pragmatics of Question Answering, Boston MA, May 2004.
- Co-chair with Prof. Rodolfo Delmonte of the 2003 International Symposium on Reference Resolution for Question Answering and Summarization, Venice, Italy, June 2003.
- Co-Chair with Drs. Nancy Chinchor, Beth Hezler and Lucy Nowell of the ACL'2002 Workshop on Natural Language Processing and Visualization.
- Co-chair with Dr. Vinay Chaudhri of the AAAI-2002 Spring Symposium on Mining Answers from Texts and Knowledge Bases, Stanford University, March 2002.
- Co-chair with Prof. Antonio Fernandez Rodriguez of the 2002 International Symposium on Reference Resolution in Natural Language Processing, Alicante, Spain, June 2002.

3

- Instructor of the COLING-2002 Tutorial on Question/Answering Systems.
- Co-Instructor with Prof. Dan Moldovan of the IJCAI-2001 Tutorial on Question/Answering Systems.
- Co-Instructor with Prof. Dan Moldovan of the NA-ACL-2001 Tutorial on Question/Answering Systems.
- Co-Organizer with Prof. Dan Moldovan of the NA-ACL 2001 Workshop WordNet and other Lexical Resources - Extensions and NLP Applications.
- Co-Organizer with Yael Ravin and John Prager from IBM Research of the ACL 2001 Workshop on Open-Domain Question Answering.
- Led the research committee that developed the Roadmap for Question Answering Research for the years 2001-2006. This activity has been undertaken under the DARPA TIDES project.
- Theme session chair, 38th Annual Meeting of the Association of Computational Linguistics (ACL-2000) for the theme: "NLP and Open-Domain Question Answering from Text", Hong Kong, 2000.
- Co-Organizer with Joyce Chai from Duke University of the COLING-ACL '98 Workshop on Usage of WordNet in Natural Language Processing Systems, 1998.
- Editor Proceedings of the COLING-ACL '98 Workshop on the Usage of WordNet in Natural Language Processing Systems, Montreal, Canada, August 1998.

• Program Committees:

- 30th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2007) (Area Chair)
- 2007 Human Language Technology Conference/North American chapter of the Association for Computational Linguistics (HLT/NAACL-2007) (Area Chair)
- 45th Annual Meeting of the Association for Computational Linguistics (ACL-2007)
- Twenty-Second National Conference on Artificial Intelligence (AAAI-2007)
- ACM Sixteenth Conference on Information and Knowledge Management (CIKM-2007)
- Twenty-Ninth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2006) (Area Chair)
- Twenty-First National Conference on Artificial Intelligence (AAAI-2006)
- 2006 Human Language Technology Conference/North American chapter of the Association for Computational Linguistics (HLT/NAACL-2006)
- 11th Conference of the European Chapter of the Association for Computational Linguistics (EACL-2006)
- ACM Fourteenth Conference on Information and Knowledge Management (CIKM-2005)
- 43rd Annual Meeting of the Association for Computational Linguistics (ACL-2005)
- 2005 Human Language Technology Conference and the Conference on Empirical Methods in Natural Language Processing (HLT/EMNLP-2005)
- Twenty-Eighth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2006)
- ACM Thirteenth Conference on Information and Knowledge Management (CIKM-2004)
- Joint Conference on Human Language Technology and the North-American Chapter of the Association of Computational Linguistics (HLT/NAACL-2004)
- Joint Conference on Human Language Technology and the North-American Chapter of the Association of Computational Linguistics (HLT/NAACL-2004) (Area Chair)
- Twenty-Seventh Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2004)

- 42nd Annual Meeting of the Association for Computational Linguistics (ACL-2004)
- Joint Conference on Human Language Technology and the North-American Chapter of the Association of Computational Linguistics (HLT/NAACL-2003) (Area Chair)
- Twenty-Sixth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2003)
- 41st Annual Meeting of the Association for Computational Linguistics (ACL-2003)
- 2003 Conference on Empirical Methods in Natural Language Processing (EMNLP-2003)
- The Eighteenth National Conference on Artificial Intelligence (AAAI-2002)
- Twenty-Fifth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2002)
- Conference on Human Language Technology (HLT-2002)
- 38th Annual Meeting of the Association for Computational Linguistics (ACL-2000)
- International Florida Artificial Intelligence Symposium Conference (FLAIRS-2003), (FLAIRS-2002), (FLAIRS-2001) (FLAIRS-2000), (FLAIRS-1999), (FLAIRS-1998)
- IEEE International Conference on Tools with Artificial Intelligence (ICTAI-1999) (ICTAI-2001)

MAJOR RESEARCH PROJECTS

□ Current Projects

- The AQUINAS Project "AQUINAS: Answering Questions Using Inference and Advanced Semantics". The driving rationale for the approach developed in the AQUINAS Project is based on the observation that there is limited need for factoid question answering, but rather more need to have systems that can deal with complex reasoning about causes, effects, chains of hypotheses. Approaching this goal requires a flexible, component-based architecture for Q/A which allows us to (1) use conceptual schemas and associated event structures for representing meaning; (2) building linguistically rich probabilistic models for language analysis; (3) extending probabilistic semantics to deductive and abductive inference; (4) making use of extending recent ideas in computational learning theory to better build models and to make discriminative decisions; and (5) capture the importance of context and background knowledge in natural language understanding and reasoning.
- The AQUAINT Project "Computational Implications for Advanced Question Answering". This ARDA-sponsored effort enhances existing Question Answering systems, by providing deep semantic information necessary for interpret the intentions behind questions that are asked. The experimental prototype will be a state-of-the-art QA plug-in capable of coercing relevant information, by going beyond syntactic processing and allowing implied and pragmatic knowledge. Additional processing sophistication of the world knowledge is required by Question/Answering systems. This project develops knowledge processing techniques that can be applied to any Question Answering system to enhance its performance.
- The NSF CAREER "Reference Resolution for Natural Language Understanding" Project. The NSF CAREER project has the objective of addressing one of the major *knowledge engineering* bottlenecks in natural language processing systems, namely the problem of reference resolution. This project extends COCKTAIL, an empirical reference resolution system that relies on several sets of heuristics, corresponding to various forms of reference. In particular, the framework is being extended to learn semantic knowledge that supports consistency checks. This enhancement will provide *high precision* reference resolution and also enhance substantially the *recall* of referential links.

□ Past Projects

- The "CADRE: A Tool for Transforming WordNet into a Core Knowledge Base" Project. This project concerned with the problem of rapid creation of enhanced knowledge bases for NLP. The Princeton WordNet lexico-semantic database was enhanced by disambiguating the glosses and transforming them into logic formulae.
- The Open-Domain Information Extraction ARP Project. This project concerns with the problem of information access from large-scale on-line text collections or the World Wide Web. In this project are developing techniques that combine recent results in extraction customization and knowledge mining from linguistic resources to identify the most common relationships within a sublanguage (e.g. the set of texts concerning a particular subject matter) and the different ways in which these relations are expressed in texts.
- The TIPSTER- Phase III Project. The TIPSTER Text Program was a DARPA led Government effort to advance the state-of-the-art in text handling technologies and deploy the resulting advanced capability in the workplace. The mission of Phase III of the TIPSTER program was to provide a vehicle for delivering text document detection and information extraction methods to analysts in the intelligence community. Contribution with:
 - Methods of automatic detection of events of interest in documents.
 - Methods for establishing conference links between entities and events in and across documents.
- Participated in the MUG (Message Understanding Conference) competitions. Member of the SRI International group for MUC-7. Member of the USC team for the MUC-5 and support for the MUC-6 at the SMU site. Participated in the TREC Question Answering Track in 1999, 2000, 2001, 2002, 2003 and 2004.

List of Courses Taught

- Fall 1998: CSE-3358 Data Structures (SMU)
- Spring 1999: CSE-5320/7320 Artificial Intelligence (SMU)
- Fall 1999: CSE-3358 Data Structures (SMU)
- Spring 1999: CSE-5320/7320 Artificial Intelligence (SMU)
- Fall 2000: CSE-3358 Data Structures (SMU)
- Fall 2000: CSE-8337 Information Retrieval (SMU)
- Spring 2001: CSE-5320/7320 Artificial Intelligence (SMU)
- Fall 2001: CS-395T Topics in Natural Language Processing (UT Austin)
- Spring 2002: CS-6364 Artificial Intelligence (UT Dallas)
- Fall 2002: CS-6322 Information Retrieval (UT Dallas)
- Spring 2003: CS-6364 Artificial Intelligence (UT Dallas)
- Fall 2003: CV-81501 Discourse Processing (UT Dallas)
- Spring 2004: CS-6364 Artificial Intelligence (UT Dallas)
- Fall 2004: CS-6321 Discourse Processing (UT Dallas)
- Spring 2005: CS-6364 Artificial Intelligence (UT Dallas)
- Fall 2005: CS-6322 Information Retrieval (UT Dallas)
- Spring 2006: CS-6364 Artificial Intelligence (UT Dallas)
- Fall 2006: CS-6320 Natural Language Processing (UT Dallas)

Ph.D. Students

- Marius Pasca, Department of Computer Science and Engineering, SMU, Graduated September 2001.
- Paul Morărescu, Department of Computer Science, UT Dallas, Chair
- Finley Lăcătușu, Department of Computer Science, UT Dallas, Chair
- Cosmin Adrian Bejan, Department of Computer Science, UT Dallas, Chair
- Cristina Nicolae, Department of Computer Science, UT Dallas, Chair
- Gabriel Nicolae, Department of Computer Science, UT Dallas, Chair
- Chris Hathaway, Department of Computer Science, UT Dallas, Chair

Masters Students

- Bryan Mader, Department of Computer Science and Engineering, SMU, Graduated 2000
- Manish Bhatia, Department of Computer Science and Engineering, SMU, Graduated 2001
- Milind Horao, Department of Computer Science, UT Dallas, Graduated 2004.
- Arvind Joshi, Department of Computer Science, UT Dallas, Graduated 2004.
- Daniel Worlon, Department of Computer Science, UT Dallas, Graduated 2006.
- Rodrick Adams, Department of Computer Science, UT Dallas.

PUBLICATIONS

Books

- *Advances in Textual Question Answering*, Editors Tomok Strzalkowski and Sanda Harabagiu, Springer Publishing House, 2006.

Book Chapters

- S. Harabagiu and D. Moldovan, "Knowledge Processing on Extended WordNet", in *WordNet: An Electronic Lexical Database and Some of its Applications*, Editor C. Fellbaum, pages 379-405, MIT Press, 1998.
- S. Harabagiu and D. Moldovan, "Enriching the WordNet Taxonomy with Contextual Knowledge Acquired from Text", in *Natural Language Processing and Knowledge Representation: Language for Knowledge and Knowledge for Language*, editors S. Shapiro and L. Iwasaka, pages 301-334, AAAI/MIT Press, 2000.
- S. Harabagiu and D. Moldovan, "Textual Question Answering", in *Handbook of Natural Language Processing*, Editor R. Mitkov, pages 560-582, Oxford Press, 2003.
- S. Harabagiu, "Questions and Intentions", in *Advances in Textual Question Answering*, Editors Tomok Strzalkowski and Sanda Harabagiu, Springer Publishing House, 2006.

Journal Articles

1. S. Harabagiu, A. Hickl and F. Lăcătușu, "Satisfying Information Needs with Multi-Document Summaries. *Information Processes and Management*, to appear February 2007.
2. D. Moldovan, C. Clark, S. Harabagiu and D. Hodges, "COGEX: A Semantically and Contextually Enriched Logic Prover for Question Answering", *Journal of Applied Logic*, Vol 5, pages 49-69, 2007.
3. S. Harabagiu, S. Maiorano and M. Pasca, "Open-Domain Textual Question Answering Techniques", *Journal of Natural Language Engineering*, Vol 9, No 3, September 2003, pp 3-44, Cambridge University Press.
4. D. Moldovan, M. Pasca, S. Harabagiu and M. Surdeanu, "Performance Issues and Error Analysis in an Open-Domain Question Answering System", *ACM Transactions on Information Systems*, (21), 2:133-154, 2003.
5. F. Cîrăveanu and S. Harabagiu, "Recent Advances in Natural Language Processing", *IEEE Intelligent Systems*, Jun/Feb (18):1, 12-13, 2003.
6. M. Surdeanu, D. Moldovan and S. Harabagiu, "Performance Analysis of a Distributed Question Answering System", *IEEE Transactions on Parallel and Distributed Systems*, Vol 13, No 6, pp 611-627, June 2002.
7. S. Harabagiu, M. Pasca and S. Maiorano, "A Knowledge-Based Answer Engine for Open-Domain Questions", *International Journal on Artificial Intelligence Tools*, Vol. 10, No. 1-2, March 2001.
8. S. Harabagiu, "Patterns of Propositional Attachments: Where Dictionary Semantics Meets Corpus Statistics", *International Journal of Pattern Recognition and Artificial Intelligence*, Vol 14, No 6, pages 809-838, September 2000.
9. S. Harabagiu, "From Lexical Cohesion to Textual Coherence - A Data Driven Perspective", *International Journal of Pattern Recognition and Artificial Intelligence*, Vol. 13, No 2, pages 1-18, February 1999.
10. T. Yikawa, S. Harabagiu and D. Moldovan, "Viewpoint-Based Similarity Discrimination on SNAP", *IEEE Transactions on Information and Systems*, Vol. E82-D, No. 2, February 1999, pages 500-502.
11. S. Harabagiu and D. Moldovan, "A Parallel System for Text Inference Using Marker Propagations", *IEEE Transactions on Parallel and Distributed Systems*, Vol. 9, No 8, August 1998, pages 720-747.
12. S. Harabagiu and D. Moldovan, "TextNet - A Text-based Intelligent System", *Journal of Natural Language Engineering*, vol 3, No. 2/3, pages 171-190, Cambridge University Press, 1997.

13. S. Harabagiu and S. Maiorano, "Using Bilingual Corpora to Enhance Coreference Resolution", submitted to *Computational Linguistics* for a special issue on Anaphora and Ellipsis Resolution. Currently under 2nd review.

14. S. Harabagiu and F. Lăcătușu, "Using Topic Themes for Multi-Document Summarization", *ACM Transactions on Information Systems*, 2005, submitted.
15. Harabagiu and S. Maiorano, "Rapid Prototyping of Information Extraction Rules", submitted to *Journal of Artificial Intelligence Research*.
16. S. Harabagiu, "Customizable Information Extraction from Texts", submitted to *IEEE Transactions on Knowledge and Data Engineering*.
17. S. Harabagiu, "The Representation and Processing of Coreference in Real-World Texts", submitted to *Journal of Artificial Intelligence Research*.
18. S. Harabagiu, "Semantic Patterns for Information Extraction", submitted to *IEEE Transactions on Pattern Analysis and Machine Intelligence*.

Refereed Conference and Workshop Papers

1. S. Harabagiu and A. Hickl, Methods for Using Textual Entailment in Open-Domain Question Answering, in *Proceedings of the 21st International Conference on Computational Linguistics and 44th Annual Meeting of the Association for Computational Linguistics (COLING/ACL-2006)*, pages 905-912, Sydney, Australia, July 2006.
2. A. Hickl, P. Weig, J. Lehmann and S. Harabagiu, FERRET: Interactive Question-Answering for Real-World Environments, *Proceedings of the COLING/ACL 2006 Interactive Presentation Sessions*, pages 25-28, Sydney, Australia, July 2006.
3. S. Harabagiu, A. Hickl and F. Lăcătușu, "Negation, Contrast and Contradiction in Text Processing", in *Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI-2006)*, July 2006.
4. S. Harabagiu, F. Lăcătușu and A. Hickl, "Answering Complex Questions with Random Walk Models", in *Proceedings of the 29th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2006)* pages 220-227, August 2006.
5. F. Lăcătușu, A. Hickl and S. Harabagiu, "Impact of Question Decomposition on the Quality of Answer Summaries", in *Proceedings of the 5th international conference on Language Resources and Evaluation, (LREC 2006)*, May 2006.
6. S. Harabagiu and A. Bejan, "An Answer Bank for Temporal Inference", in *Proceedings of the 5th international conference on Language Resources and Evaluation, (LREC 2006)*, May 2006.
7. S. Harabagiu and F. Lăcătușu, "Topic themes for multi-document summarization", in *Proceedings of the 28th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2005)*, pages 202-209, August 2005.
8. S. Harabagiu, C. Bejan, and P. Morarescu, "Shallow Semantics for Relation Extraction", in *Proceedings of 19th International Joint Conferences on Artificial Intelligence (IJCAI-05)*, pages 1061-1067, August 2005.
9. D. Moldovan, C. Clark, and S. Harabagiu, "Temporal Context Representation and Reasoning", in *Proceedings of 19th International Joint Conferences on Artificial Intelligence (IJCAI-05)*, pages 1099-1105, August 2005.
10. S. Harabagiu, A. Hickl, J. Leimann, and D. Moldovan, "Experiments with Interactive Question-Answering", *Proceedings of the 43rd Annual Meeting of the Association for Computational Linguistics (ACL'05)*, pages 205-214, July 2005.
11. S. Harabagiu, "Incremental Topic Representations", in *Proceedings of the 20th International Conference on Computational Linguistics (COLING-2004)*, pages 583-589, August 2004, Geneva, Switzerland.

12. S. Narayanan and S. Harabagiu, "Question Answering Based on Semantic Structures", in *Proceedings of the 20th International Conference on Computational Linguistics (COLING-2004)*, pages 683-701, August 2004, Geneva, Switzerland.
13. C.A. Bejan, A. Moschitti, P. Morărescu, G. Nicolae and S. Harabagiu, "Semantic Parsing Based on Framework" in *Proceedings of SENSEVAL-3, the Third International Workshop on the Evaluation of Systems for Semantic Analysis of Text*, pages 73-76, July 2004, Barcelona, Spain.
14. S. Harabagiu and F. Lăcătușu, "Strategies for Advanced Question Answering", in *Proceedings of the Workshop on Pragmatics of Question Answering at HLT-NAACL 2004*, pages 1-9, May 2004, Boston MA.
15. S. Narayanan and S. Harabagiu, "Answering Questions Using Advanced Semantics and Probabilistic Inference", in *Proceedings of the Workshop on Pragmatics of Question Answering at HLT-NAACL 2004*, pages 10-16, May 2004, Boston MA.
16. S. Harabagiu, S. Maiorano, A. Moschitti and C.A. Bejan, "Intentions, Implications and Processing of Complex Questions", in *Proceedings of the Workshop on Pragmatics of Question Answering at HLT-NAACL 2004*, pages 31-42, May 2004, Boston MA.
17. A. Moschitti and S. Harabagiu, "A Novel Approach to Focus Identification in Question Answering Systems", in *Proceedings of the Workshop on Pragmatics of Question Answering at HLT-NAACL 2004*, pages 43-51, May 2004, Boston MA.
18. A. Hickl, J. Lehmann, J. Williams and S. Harabagiu, "Experiments with Interactive Question Answering in Complex Scenarios", in *Proceedings of the Workshop on Pragmatics of Question Answering at HLT-NAACL 2004*, pages 60-69, May 2004, Boston MA.
19. P. Morărescu and S. Harabagiu, "NameNet: a Self-Improving Resource for Name Classification", accepted for publication in the *4th International Conference on Language Resources and Evaluation (LREC-2004)*, Lisbon, Portugal, May 2004.
20. F. Lăcătușu, S. Maiorano and S. Harabagiu, "Multi-Document Summarization using Multiple-Sequence Alignment", accepted for publication in the *4th International Conference on Language Resources and Evaluation (LREC-2004)*, Lisbon, Portugal, May 2004.
21. M. Surdeanu, S. Harabagiu, J. Williams and P. Aarseth, "Using Predicate-Argument Structures for Information Extraction", in *Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics (ACL-2003)*, pages 8-15, July 2003.
22. D. Moldovan, C. Clark, S. Harabagiu and S. Maiorano, "COGEX: A Logic Prover for Question Answering", in *Proceedings of the Joint Conference of Human Language Technology and the North American Chapter of ACL (HLT-NAACL 2003)*, Edmonton, Canada, pages 166-172, 2003.
23. F. Lăcătușu, P. Parker and S. Harabagiu, "LiteGisTexter: Generating Short Summaries with Minimal Resources", in *Proceedings of the Document Understanding Conference 2003 (DUC 2003)*, pages 122-128, Edmonton, Canada, May 2003.
24. S. Harabagiu, F. Lăcătușu and S. Maiorano, "Multi-Document Summaries Based on Semantic Redundancy", in the *Proceedings of the 14th Florida AI Conference (FLAIRS-2003)*, St. Augustine FL, pages 387-391, 2003.
25. A. Moschitti, P. Morărescu and S. Harabagiu, "Open-Domain Information Extraction via Automatic Semantic Labeling", in the *Proceedings of the 14th Florida AI Conference (FLAIRS-2003)*, St. Augustine FL, pages 387-401, 2003.
26. S. Harabagiu, D. Moldovan and J. Ptones, "Open-Domain Voice-Activated Question Answering", in *Proceedings of the 19th International Conference on Computational Linguistics (COLING-2002)*, pages 321-327, August 2002, Taipei, Taiwan.
27. D. Moldovan, M. Pașca, S. Harabagiu and M. Surdeanu, "Performance Issues and Error Analysis in an Open-Domain Question Answering System", in *Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics (ACL-2002)*, pages 33-40, July 2002.

28. S. Harabagiu and F. Lăcătușu, "Generating Single and Multi-Document Summaries with GisTexter", in *Proceedings of the Document Understanding Conference 2002 (DUC 2002)*, July 2002.
29. S. Harabagiu and S. Maiorano, "Three Ways to Customize Reference Resolution", *Proceedings of the 2002 International Symposium on Reference Resolution for Natural Language Processing*, pages 17-24, June 2002, Alicante, Spain.
30. S. Harabagiu, S. Maiorano, "Multi-Document Summarization with GisTexter", in the *Proceedings of the 3rd International Conference on Language Resources and Evaluation (LREC-2002)*, pages 1456-1463, Canary Islands, May 2002.
31. M. Surdeanu and S. Harabagiu, "Infrastructure for Open-Domain Information Extraction", in *Proceedings of the Conference for Human Language Technology (HLT-2002)*, pages 325-330, March 2002.
32. S. Harabagiu and S. Maiorano, "Abductive Processes for Answer Justification", in the *Proceedings of AAAI Spring Symposium on Mining Answers from Texts and Knowledge Bases*, pages 33-44, Stanford University, March 2002.
33. S. Harabagiu, F. Lăcătușu and P. Morărescu, "Point and Paste Question Answering", in the *Proceedings of AAAI Spring Symposium on Mining Answers from Texts and Knowledge Bases*, pages 27-32, Stanford University, March 2002.
34. S. Harabagiu, "Just-in-Time Question Answering", in the *Proceedings of the International Conference for Natural Language Processing on the Pacific Rim*, November 2001.
35. S. Harabagiu, R. Bunesco and S. Trăusan-Matu, "COREDRAW: A Tool for Annotation and Visualization of Conference Data", published in the *Proceedings of the 13th International Conference on Tools with Artificial Intelligence*, Dallas TX, November 2001.
36. M. Pașca and S. Harabagiu, "High-Performance Question Answering", in the *Proceedings of the 24th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2001)*, pages 366-374, September 2001.
37. S. Harabagiu, D. Moldovan, M. Pașca, R. Mihalcea, M. Surdeanu, R. Bunesco, R. Gîrju, V. Rus and P. Morărescu, "The Role of Lexico-Semantic Feedback in Open-Domain Textual Question Answering", in the *Proceedings of the 39th Annual Meeting of the Association for Computational Linguistics (ACL-2001)*, pages 274-281, July 2001.
38. M. Pașca and S. Harabagiu, "Answer Mining from On-Line Documents", in the *Proceedings of ACL-2001 Workshop on Open-Domain Question Answering*, pages 38-45, July 2001.
39. S. Harabagiu, R. Bunesco and S. Maiorano, "Text and Knowledge Mining for Coreference Resolution", in the *Proceedings of the 2nd Conference of the North American Chapter of the Association for Computational Linguistics (NA-AACL 2001)*, Carnegie-Mellon University, pages 55-62, June 2001.
40. S. Harabagiu, M. Pașca and F. Lăcătușu, "Dialogue Management for Interactive Question Answering", in the *Proceedings of the 14th Florida AI Conference (FLAIRS-2001)*.
41. S. Harabagiu, M. Surdeanu and P. Morărescu, "Automatic Discovery of Linguistic Patterns for Information Extraction", in the *Proceedings of the 14th Florida AI Conference (FLAIRS-2001)*.
42. S. Harabagiu and R. Bunesco, "Data-Driven Coreference Resolution", in the *Proceedings of the 14th Florida AI Conference (FLAIRS-2001)*.
43. M. Surdeanu, D. Moldovan and S. Harabagiu, "Performance Analysis of a Distributed Question Answering System", in the *Proceedings of the International Parallel & Distributed Processing Symposium (IPPS&SPDP-2001)*, San Francisco, CA, April 2001.
44. S. Harabagiu, D. Moldovan, M. Pașca, R. Mihalcea, M. Surdeanu, R. Bunesco, R. Gîrju, V. Rus and P. Morărescu, "FALCON: Boosting Knowledge for Answer Engines", in the *Proceedings of the Text Retrieval Conference TREC-9*, pages 80-99, November, 2000.

45. D. Moldovan, S. Harabagiu, M. Pasca, R. Mihalcea, R. Goodrum, R. Girju and V. Rus, "The Structure and Performance of an Open-Domain Question Answering System", in the *Proceedings of the 38th Annual Meeting of the Association for Computational Linguistics (ACL-2000)*, pages 563-570, October, 2000.
46. S. Harabagiu, M. Pasca and S. Maiorano, "Experiments with Open-Domain Textual Question Answering", in *Proceedings of the 18th International Conference on Computational Linguistics (COLING-2000)*, pages 192-208, August 2000.
47. S. Harabagiu and S. Maiorano, "Acquisition of Linguistic Patterns for Knowledge-Based Information Extraction", in *Proceedings of the Second International Conference on Language Resources and Evaluation (LREC-2000)*, June 2000.
48. S. Harabagiu and S. Maiorano, "Multilingual Coreference Resolution", in *Proceedings of the 6th Conference on Applied Natural Language Processing (ANLP-2000)*, pages 142-149, May 2000.
49. S. Harabagiu and M. Pasca, "Mining Textual Answers with Knowledge-Based Indicators", in the *Proceedings of the Florida AI Conference, FLAIRS-2000*, Orlando FL, May 2000, pages 214-218.
50. D. Moldovan, S. Harabagiu, M. Pasca, R. Mihalcea, R. Goodrum, R. Girju and V. Rus, "LASSO: A Tool for Surfing the Answer Net", in the *Proceedings of the Text Retrieval Conference TREC-8*, pages 65-73, November, 1999.
51. S. Harabagiu and S. Maiorano, "Finding Answers in Large Collections of Texts: Paragraph Indexing + Abductive Inference", in the *Proceedings of the AAAI Fall Symposium on Question Answering Systems*, pages 63-71, November, 1999.
52. S. Harabagiu and S. Maiorano, "Knowledge-Learn Coreference Resolution and its Relation to Textual Cohesion and Coherence", in the *Proceedings of the ACL-99 Workshop on the Relation of Discourse/Dialogue Structure and Reference*, June 1999, Univ. of Maryland, pages 29-38.
53. S. Harabagiu, G. Miller and D. Moldovan, "WordNet 2 - A Morphologically and Semantically Enriched Resource", in the *Proceedings of SIGLEX-99*, June 1999, Univ. of Maryland, pages 1-8.
54. S. Harabagiu and M. Pasca, "Integrating Symbolic and Statistical Methods for Propositional Phrase Attachment", in the *Proceedings of the Florida AI Conference, FLAIRS-99*, Orlando FL, May 1999, pages 303-307.
55. S. Harabagiu, "Deriving metonymic coercions from WordNet", in the *Proceedings of the COLING-ACL '98 Workshop on Usage of WordNet in Natural Language Processing Systems*, Montreal, Canada, 1998.
56. S. Harabagiu, "WordNet-Based Inference of Textual Cohesion and Coherence", in the *Proceedings of the Florida AI Conference, FLAIRS-98*, pages 265-269, Sanibel Island FL, 1998.
57. S. Harabagiu and D. Moldovan, "Parallel Inference on a Linguistic Knowledge Base", published in the *Proceedings of the International Parallel Processing Symposium, (IPPS-97)*, pages 204-208, Geneva, Switzerland, 1997.
58. S. Harabagiu and D. Moldovan, "Contextual Information Brokers - Gathering Commonsense Knowledge from the Internet", *Proceedings of the Florida AI Conference, (FLAIRS-97)*, Daytona Beach FL, 1997.
59. S. Harabagiu and D. Moldovan, "PARIS: A Parallel Inference System", published in the *Proceedings of the 8th International Conference on Tools with Artificial Intelligence*, pages 216-223, Toulouse, France, 1996.
60. S. Harabagiu and D. Moldovan, TextNet - A Text-based Intelligent System, published in the *Work Notes of the AAAI Fall Symposium on Knowledge Representation Systems Based on Natural Language, (AAAI-FS-96)*, pages 32-43, MIT, Cambridge, MA, 1996.
61. S. Harabagiu, "An Application of WordNet to Propositional Attachment", published in the *Proceedings of the Conference of the Association of Computational Linguistics, (ACL-96)*, pages 360-363, Santa Cruz, CA, 1996.
62. S. Harabagiu and D. Moldovan, "An Intelligent System for Question Answering", published in the *Proceedings of the 5th International Conference on Intelligent Systems*, pages 71-75, Reno, NV, 1996.
63. S. Harabagiu and D. Moldovan, "A Marker Propagation Text Understanding and Inference System", published in the *Proceedings of the Florida AI Conference, (FLAIRS-96)*, pages 55-59, Key West, FL, 1996.
64. S. Harabagiu and D. Moldovan, "A Parallel Algorithm for Text Inference", published in the *Proceedings of the International Parallel Processing Symposium, (IPPS-96)*, pages 441-445, Honolulu, Hawaii, 1996.
65. S. Harabagiu, D. Moldovan and T. Yukaawa, "Testing Gricean Constraints on a WordNet-based Collocation Evaluation System", published in the *Work Notes of the AAAI Spring Symposium Series Workshop on Conversational Implicatures: Computational Approaches to Integrating and Generating Conversational Implicature, (AAAISS-96)*, pages 31-38, Stanford, CA, 1996.
66. S. Harabagiu and D. Moldovan, "A Marker-Propagation Algorithm for Text Coherence", published in the *Proceedings of the Workshop on Parallel Processing in AI, International Joint Conference of Artificial Intelligence, (IJCAI-95)*, pages 76-86, Montreal, Canada, 1995.
67. S. Harabagiu, "A Computational Model for Capturing the Coherence and Structure of Discourse", published in the *Proceedings of the North Texas Natural Language Processing Workshop*, pages 36-47, Dallas, TX, 1994.

INVITED TALKS

1. S. Harabagiu, *Current and Future Trends in Question Answering*, Distinguished Lecturer Symposium Series, Johns Hopkins' Center for Language and Speech Processing, November 2006.
2. S. Harabagiu, *Scenario-Based Question Answering, Keynote Invited Speech*, COLING/ACL-2006 Workshop on Task-Focused Summarization and Question Answering, July 2006, Sydney Australia.
3. S. Harabagiu, *Empowering Today's Customers with New Tools for Information Seeking, Keynote Invited Speech*, Langtech 2003, Paris, France.
4. S. Harabagiu, *Advanced Techniques for Question Answering*, German Research Center for Artificial Intelligence (DFKI), Saarbrücken, Germany, June 18 2003.
5. S. Harabagiu, *Using Lexico-Semantic Resources for Information Extraction and Question Answering*, Department of Computer Science and ICSI, University of California at Berkeley, February 14, 2003.
6. S. Harabagiu, *Just-In-Time Question Answering, Keynote Invited Speech*, NLP9S-2001, Tokyo, Japan.
7. S. Harabagiu, *Boosting Knowledge for Open-Domain Answer Engines*, Department of Computer Science and Language Technology Institute, Carnegie-Mellon University, December 1, 2000.
8. S. Harabagiu, *INTERLOCUTOR - A Dialogue Shell for Open-Domain Textual Q/A Systems*, Department of Computer Science, Duke University, November 16, 2000.
9. S. Harabagiu, *Knowledge-Learn Coreference Resolution*, Central Intelligence Agency, July 9, 1999.
10. S. Harabagiu, *The Usage of WordNet for the Information Extraction Task*, Central Intelligence Agency, December 14, 1998.
11. S. Harabagiu, *Using WordNet for Knowledge Intensive Natural Language Processing*, Stanford Research Institute, February 10, 1997.
12. S. Harabagiu, *From WordNet to TextNet*, Cognitive Science Laboratory, Princeton University, July 8, 1996.

Doctoral Dissertation Committees

- Marius Pasca, Chair, graduated 2001.
- Rada Mihalcea, Member, graduated 2001.
- Prasad Golia, Member, graduated 1999.
- Vasile Rus, Member, graduated 2002.
- Adriana Bădiulescu, Member, graduated 2004.

- Adrian Novischi, Member, graduated 2005.
- Finley Lăcătușu, Chair, projected graduation: Fall 2006.
- Paul Paul Morărescu, Chair, projected graduation: Spring 2007.
- Cosmin Bejan, Chair, projected graduation: Summer 2009.
- Cristina Nicolae, Chair, projected graduation: Summer 2010.
- Gabriel Nicolae, Chair, projected graduation: Summer 2010.
- Rodrick Adams, Chair, projected graduation: Summer 2010.

Master Dissertation Committees

- Rada Mihailescu, Member, graduated 1999.
- Vesile Rus, Member, graduated 1999.
- Roxana Girju, graduated 2000.
- Mihail Balakrishna, graduated 2004.
- Arvind Joshi, graduated 2004.
- Marta Tatu, graduated 2004.
- Marian Olteanu, graduated 2004.

Department and University Service

- Director Human Language Technology Research Institute, 2002-present.
- Member, Search Committee for EE Department Chair, UTD, 2004-2005.
- Intelligent System Group Coordinator, CS Department, UTD, 2004-2006.
- Member, Dean of School of Engineering Search Committee, UTD, 2002-2003.
- Member, Faculty Search Committee, Department of Computer Science, UTD, 2002.
- Member, Equipment Committee, Department of Computer Science, UTD, 2002.
- Member, Dean of School of Engineering Search Committee, SMU, 1999-2000.
- Member, Faculty Search Committee, Department of Computer Science and Engineering, SMU, 1999-2000.
- Member, Institutional Effectiveness Study for the 1998-1999 Computer Science Graduate Programs, SMU.
- Member, Department of Computer Science and Engineering Assessment Committee, SMU, 1998.

VISA Status

- U.S. citizen.

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Education

- Ph.D. "On Complexity Measures Induced by Probability Distributions",
Computer Science Department, University of Saarbrücken, Germany, 1978
"Functional Relationship Between Formal Languages".
M.S. Computer Science Department, University of Saarbrücken, Germany, 1977

Research Interests

Computational Complexity Theory, Automata and Formal Languages, Concurrency
Theory, Communication Networks and Protocols, Parallel Computation, Software
Engineering, Software Metrics.

Employment

- 97- : Professor and Department Head, University of Texas at Dallas
91-97: Professor of Computer Science, University of Texas at Dallas
86-91: Associate Professor of Computer Science, University of Texas at Dallas
83-86: Assistant Professor of Computer Science, Iowa State University
82-83: Visiting Assistant Professor of Mathematics and Computer Science,
University of Chicago
78-82: Postdoctoral Research Associate, University of Saarbrücken, Germany
77-78: Teaching Assistant, University of Saarbrücken, Germany

Teaching Experience

1. Formal Scheduled Courses taught:

- 86- : *Discrete Mathematics*, Undergraduate Level, (Text: Stanat and McAllister)
Automata Theory, Graduate Level, (Text: Hopcroft and Ullman)
Automata Theory, Undergraduate Level, (Texts: Martin / Sudkamp)
Compiler Construction, Graduate Level, (Text: Aho and Ullman)
Theory of Computation, Graduate Level, (Text: Cutland)
Design and Analysis of Computer Algorithms, Graduate Level,
(Texts: Aho, Hopcroft and Ullman / Cormen, Leiserson and Rivest)

Parallel Processing, Graduate Level, (Text: Joseph JaJa)
Complexity of Combinatorial Algorithms, Graduate Level,
 (Texts: Garey and Johnson / Aho, Hopcroft, and Ullman)
Recent Advances in Complexity Theory, Seminar Course, (No text available)
Complexity of Parallel Computation, Seminar Course, (No text available)
Communication and Concurrency, Seminar Course,
 (Text: R. Milner, *Communication and Concurrency*, Prentice-Hall, 1989)
Software Metrics and Measurements, Graduate Level,
 (Text: N. Fenton, *Software Metrics: A Rigorous Approach*)
 (All in Computer Science Program, University of Texas - Dallas)
 Discrete Mathematics, Undergraduate Level, (Text: Stanat and McAllister)
Foundational Semantics, Graduate Level, (Text: Stoy)
Foundations of Computer Science, Graduate Level, (Text: Hopcroft and Ullman)
Data Structures, Undergraduate Level, (Text: Aho, Hopcroft and Ullman)
Principles of Compiling, Graduate Level, (Text: Aho and Ullman)
 (All in Iowa State University's Computer Science Department)
Machine Organization, Undergraduate Level, (Text: Tennentbaum)
Automata Theory I and II, Undergraduate Level, (Text: Hopcroft and Ullman)
Principles of Compiling, Undergraduate Level, (Text: Aho and Ullman)
 (All in University of Chicago's Mathematics Department)
Systematic Programming, Undergraduate Level, (Text: N. Wirth)
Formal Languages, Seminar Course, (Text: Harrison)
Operating System Theory, Tutorial, (Text: Coffman and Denning)
 (All in University of Saarbrücken's Computer Science Department)

83-86:

82-83:

78-82:

2. Teaching Materials developed:

- Recent Advances in Complexity Theory
- Complexity of Parallel Computation

3. Doctoral Students supervised at present:

- Jason Bolla (passed Ph.D. qualifier), currently working on Wireless Ad Hoc and Sensor Networks.
- Trac Nguyen (passed Ph.D. qualifier), currently working on Wireless Ad Hoc and Sensor Networks.
- Pallavi Mavinkurve (passed Ph.D. qualifier), currently working on Wireless Ad Hoc and Sensor Networks.

4. Graduate Student Supervising Committee Service:

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- Chair of 1 Ph.D. oral exam
- Chair of 5 Supervising Committees
 (Ph.D. candidates: Sang Cho, Sunan Han, Kevin Ho, Young Tae Song, and Thai Vuong)
- Member of several Supervising Committees
 (Gilbert Young, Adair Dingle, Daisy Sang, James Wong, Tony Peng, Seshu Madavapaddy, Angela Lee, Bin Cong, Kun-Ming Yu, Tommy Tam, Caspi Yuval, Mohamed Freydari, Rodolfo Castillo, V. Benson)

5. Names of Students Supervised Who Received the Doctoral Degree:

- Sang Cho, Ph.D. Thesis: "The Parallel Complexity of Finite State Automata Problems", 1990
- Sunan Han, Ph.D. Thesis: "Probabilistic Analyses of Some Scheduling and Packing Heuristic Algorithms", 1992.
- Kevin Ho, Ph.D. Thesis: "Algorithms for Scheduling Imprecise Computational Tasks", 1992.
- Young-Tae Song, Ph.D. Thesis: "Dynamic Slicing Software Systems", 1999
- Thai Vuong, Ph.D. Thesis: "Algorithmic Study of Wireless Ad Hoc Network Problems", 2001

6. Names of Students Supervised Who Received the Masters Degree:

- Sang Cho, M.S. Thesis: "Complexity of Parallel Computation and Recognition of Context-Free Languages", 1986
- Pallavi Mavinkurve, M.S. Thesis: "Clustering in Wireless Sensor Networks", 2004
- Jason Bolla, M.S. Thesis: "Algorithmic Problems in Wireless Ad Hoc Networks", 2005.

7. Undergraduate/Graduate Independent Study Supervision:

- Paul Nguyen (Summa Cum Laude), Project Title: "Deterministic Regular Languages"
- Hyun-Seung Choo, Independent Study (Graduate): "Switching Networks"
- Dongsoo Kim, Independent Study (Graduate): "Switching Networks"
- Feng Ling, Independent Study (Graduate): "Switching Networks"

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- Prashibha Tammana, Independent Study (Graduate): "Software Metrics"
- Hai Nguyen, Independent Study (Graduate): "Switching Networks"
- Kwi-Hyon Yoon, Independent Study (Graduate): "Dynamic Program Slicing"
- Daniel DeLuca (Magna Cum Laude), Project Title: "Implementation of a Dynamic Slicing Algorithm"

Academic Service

1. Professional Activities

Advisory Board: Journal of Automata, Languages and Combinatorics
Chair: IEEE Symp. on Appl. Specific Software Engineering and Technology 98
Program Committee: Intern. Conf. on Comp. Sci. and Inf., 2000
 Intern. Conf. on Comp. Comm. and Networks, 2000

Member: Association for Computing Machinery, ACM Sigact, ACM Sigcom
 IEEE Computer Society

Reviewer: European Association for Theoretical Computer Science
 National Science Foundation
 Natural Sciences and Engineering Research Council of Canada
 Information and Computation
 Acta Informatica
 SIAM Journal on Computing
 Journal of Computer and System Science
 Theoretical Computer Science
 Mathematical Systems Theory
 International Journal of Foundations of Computer Sciences

2. Department, College, University Service

- Graduate Admissions and Financial Aid Committee: Chair (87-88), Member (88-90), Chair (90-91), Chair (Fall 96 - Spring 97)
- Curriculum Committee: Member (87-88), Chair (88-90), Member (90-96), Member (00-01)
- Faculty Search Committee: Member (87-91), Chair (91-92), Member (92-95), Chair (95-96), Member (96-2002), Chair (2002-present).
- Publicity Committee: Member (03-present).
- School of Engineering and Computer Science Planning Committee: Member (89-95)

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- University Committee on Committees: Member (02-04)
 - University Committee on Qualifications: Member (92-94)
 - UTD Academic Senate: Member (03-04, 05-06)
 - University Committee on Information Resources: Member (94-95), Chair (95-96)
 Subcommittee on Office Automation and Telecom Services: Chair (95-96)
 - University Scholarship Committee: Member (01-03)
 - University 3+3+3 Committee on Senior Lecturers issues (00-01)
 - UT Telecampus Academic Affairs Committee: Member (2000-2003)
 - Vietnamese Students Association at UTD: Advisor (Advisor Award 1994)
 - Asian-Pacific Students Association at UTD: Advisor (Advisor Award 95)
 - Dept. Annual Review Committee, Chair
 - ECS Distinguished Lecturer Series Committee, Chair
- ### 3. Administrative Duties as Department Chair
- Administrative duties have been very heavy (leaving almost no time for research).
- In Fall 01 we mounted a serious effort to reorganize the dept. into 5 groups: Computing, Networks & Telecom, Computer Systems, Software Engineering, and Intelligent Systems. Each group is lead by a group coordinator, and important departmental committees are formed by group representatives. Current committees include:
 - CS Dept. Advisory Committee
 - Graduate Admissions Committee
 - Faculty Search committee
 - TA Committee
 - Graduate Curriculum committee
 - Undergraduate Curriculum committee
 - By-Laws committee
 - Ph.D. committee
 - Annual review committee
 - Equipment committee
 - M.S. Research Track committee
 - Publicity committee

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- Course schedules (together with Drs. Simeon Ntafos/Gopal Gupta, CS Associate Department Heads)
- Lead ABET accreditation efforts along with Associate Dept. Chairs, Form CS Ind. Advisory Board and organized meetings in Fall 03/04/05
- Hiring P/T lecturers every semester (together with Dr. Ntafos)
- Revising undergraduate and graduate catalogs
- Chair faculty search committee
- Lead effort to design/maintain a new dept. web page
- Organize the fall dept. picnic
- Improving the day-to-day operations in the department
 - Orientation seminar for new faculty
 - Degree planning seminars for graduate students
 - Overseeing registration every semester
 - Ph.D. program information seminar for prospective students
 - Orientation for international students before regular registration
 - Orientation seminars for new TAs/IRAs

Research and Scholarly Activities

Research Proposals Funded

- "Training Students in Software Engineering for High-Tech Workforce", NSF, \$380,000, 2004-2007, PIs: Gupta, Zhang
- "Establishing a Computer-Aided Education Environment using the Web-Lecture System", (with I-Ling Yen, PI, et al), Nortel Networks, \$38,000, 1998.
- "Hardware-Software Co-Design for IP Component Implementation", (with I-Ling Yen, PI, et al), Alcatel Networks Systems, \$50,000, 1999.
- "Complexity Theory and Computational Complexity of Algebraic Algorithms", National Science Foundation, April 86 - March 88, \$38,500
- "The Parallel Complexity of Finite State Automata Problems", UT-Dallas Organized Research, Sept. 87 - August 88, \$12,000

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PUBLICATIONS

Refereed Journal Publications

1. "A Rearrangement Algorithm for Switching Networks Composed of Digital Symmetrical Matrices", (with Hai Nguyen), *Information Sciences* 125, Vol. 125, pp. 83-98, 2000.
2. "Software Architecture Analysis: A Dynamic Slicing Approach", (with T. Kim, Y.-T. Song and L. Chung), *International Journal of Computer & Information Science*, Vol. 1, no 2, pp. 91-103, 2000.
3. "Dynamic Slicing Object-Oriented Programs Using Dynamic Object Relationship Diagrams", (with Y.-T. Song), accepted for publication in *Journal of Computer and Information Management*.
4. "On Deciding Readiness and Failure Equivalences for Processes", (with Lu Tian), *Information and Computation* 117, pp. 193-205, 1995.
5. "Deciding Branching Bisimilarity of Normed Context-Free Processes Is in Σ_2^P ", (with D. Cauel & L. Tian), *Information & Computation* 118, pp. 306-315, 1995.
6. "A Note on the Complexity of Deciding Bisimilarity of Normed Unary Processes", (with Lu Tian), *Theoretical Computer Science* 131, pp. 441-448, 1994.
7. "On Deciding Some Equivalences for Concurrent Processes", (with Lu Tian), *RAIRO Theoretical Informatics and Applications* 27, pp. 51-71, 1994.
8. "Deciding Bisimilarity of Normed Context-Free Processes Is in Σ_2^P ", (with Lu Tian), *Theoretical Computer Science* 123, pp. 183-197, 1994.
9. "On Deciding Trace Equivalence for Processes", (with Lu Tian), *Information Sciences* 72, pp. 105-121, 1993.
10. "The Complexity of Deciding Code and Monoid Properties for Regular Sets", *International Journal of Algebra and Computation*, Vol. 2, pp. 39-55, 1992.
11. "On Some Equivalence Relations for Probabilistic Processes", (with Lu Tian), *Fundamenta Informaticae* 17, pp. 211-234, 1992.
12. "Non-Uniform Complexity and the Randomness of Certain Complete Languages", *Theoretical Computer Science*, Vol. 96, pp. 305-324, 1992.
13. "The Parallel Complexity of Coarsest Set Partition Problems", (with Sang Chlo), *Information Processing Letters*, Vol. 42, pp. 89-94, 1992.
14. "Efficient Detectors and Constructors for Simple Languages", *International Journal of Foundations of Computer Sciences*, Vol. 2, pp. 183-205, 1992.

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15. "The Parallel Complexity of Finite State Automata Problems", (with Sang Cho), *Information and Computation*, Vol. 97, pp. 1-22, 1992.
16. "The Effective Entropies of Some Extensions of Context-Free Languages", *Information Processing Letters*, Vol. 37, pp. 165-169, 1991.
17. "A Note on Separating Deterministic-Time-Complexity Classes, and on Almost-Everywhere Complex Sets", (with J. Geske and J. Seleras), *Information and Computation*, Vol. 92, pp. 97-104, 1991.
18. "Finite Automaton Aperiodicity is $\mathbf{PSPACE-Complete}$ ", (with Sang Cho), *Theoretical Computer Science*, Vol. 88, pp. 99-116, 1991.
19. "Effective Entropies and Data Compression", *Information and Computation*, Vol. 90, pp. 67-85, 1991.
20. "Uniform Membership for Growing Context-Sensitive Grammars Is $\mathbf{P-Complete}$ ", (with Sang Cho), *International Journal of Computer Mathematics*, Vol. 37, pp. 185-188, 1990.
21. "The Complexity of Ranking Simple Languages", *Mathematical Systems Theory*, Vol. 23, pp. 1-19, 1990.
22. "A Complexity Hierarchy between \mathbf{L} and \mathbf{NL} ", (with Sang Cho), *Information Processing Letters*, Vol. 29, pp. 177-182, 1988.
23. "On Solving Hard Problems by Polynomial-Size Circuits", *Information Processing Letters*, Vol. 24, pp. 171-176, 1987.
24. "Some Complexity Bounds for Problems Concerning Finite and 2-Dimensional Vector Addition Systems with States", (with R. Howell, L. Rosier and H.-C. Yen), *Theoretical Computer Science*, Vol. 46, pp. 107-140, 1986.
25. "Some Observations about the Randomness of Hard Problems", *SIAM Journal on Computing*, Vol. 15, pp. 1101-1105, 1986.
26. "A Superexponential Lower Bound for Gröbner Bases and Church-Rosser Commutative Thue Systems", *Information and Control*, Vol. 68, pp. 196-206, 1986.
27. "The Complexity of the Membership Problem for Two Subclasses of Polynomial Ideals", *SIAM Journal on Computing*, Vol. 15, pp. 581-594, 1986.
28. "A Simple Proof for the Σ_2^P Upper Bound of the Inequivalence Problem for Semilinear Sets", *Elektronische Informationsverarbeitung und Kybernetik*, Vol. 22, pp. 147-156, 1986.
29. "The Complexity of Equivalence Problems for Commutative Grammars", *Information and Control*, Vol. 66, pp. 103-121, 1985.

30. "Complexity of the Word Problem for Commutative Semigroups of Fixed Dimension", *Acta Informatica*, 22, pp. 421-432, 1985.
31. "Properties of Congruences on Commutative Monoids", *Semigroup Forum*, Vol. 30, pp. 351-364, 1984.
32. "Deciding the Inequivalence of Context-Free Grammars over a 1-Letter Terminal Alphabet Is $\Sigma_2^P\text{-Complete}$ ", *Theoretical Computer Science*, Vol. 33, pp. 305-326, 1984.
33. "Commutative Grammars: The Complexity of Uniform Word Problems", *Information and Control*, Vol. 57, pp. 21-39, 1983.
34. "Remarks on the Complexity of an Invariant of Context-Free Grammars", *Acta Informatica*, Vol. 17, pp. 89-99, 1982.
35. "The Complexity of Semilinear Sets", *Elektronische Informationsverarbeitung und Kybernetik*, Vol. 18, pp. 291-338, 1982.

Refereed Conference Papers

1. "Connected D-Hop Dominating Sets in Mobile Ad Hoc Networks", (with Trac N. Nguyen), to appear in *Proc. 4th Intl. Symp. on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks*, Boston, MA, April 3-7, 2006.
2. "Adapting Connected D-Hop Dominating Sets to Topology Changes in Wireless Ad Hoc Networks", (with Jason Bolla), to appear in *Proc. 25th IEEE International Performance, Computing and Communications Conference*, Phoenix, Arizona, April 10-12, 2006.
3. "PatZip: Pattern-Preserved Spatial Data Compression", (with Yu Qian and Kang Zhang), *Proc. of the 9th Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Lecture Notes in Artificial Intelligence, Springer Verlag, pp. 728-736, 2005.
4. "Connected D-hop Dominating Sets in Ad Hoc Networks", (with T. Vuong), *Proc. of the 6th World Multiconference on Systemics, Cybernetics and Informatics*, pp. 54-59, Florida, 2002.
5. "Max-Min D-Cluster Formation in Wireless Ad Hoc Networks", (with A. Amis, R. Prakash, T. Vuong), *Proc. INFOCOM 2000*.
6. "Using Dynamic Slicing for Incremental Software Architecture Development", (with Y.-T. Song, T. Kim and L. Chung), *Proc. of 1st International Conference on Software Engineering Applied to Networking & Parallel/Distributed Computing*, Reims, France, pp. 336-341, 2000.

7. "Adapting D-hop Dominating Sets to Topology Changes in Ad Hoc Networks", (with T. Vuong), *Proc. of International Conference on Computer Communications and Networks*, 2000.
8. "Dynamic Software Architecture Slicing", (with T. Kim, Y. Song and L. Chung), to appear in *Proc. of the 29th Ann. Intern. Comput. Softw. & Appl. Conf.*, 1999.
9. "Adapting Broadcasting Sets to Topology Changes in Packet Radio Networks", *Proc. of the 8th Intern. Conference on Computer Communications and Networks*, pp. 263-268, 1999.
10. "Software Architecture Analysis Using Dynamic Slicing", (with T. Kim, Y. Song and L. Chung), *Proc. of 17th Ann. Intern. Conf. (AoM/IaOM)*, Vol. 17, pp. 104-109, San Diego, CA, August 6-8, 1999.
11. "Dynamic Slicing Object-Oriented Programs Using Dynamic Object Relationship Diagrams", (with Y. Song), *Proc. of 17th Ann. Intern. Conf. (AoM/IaOM)*, Vol. 17, pp. 242-247, San Diego, CA, August 6-8, 1999.
12. "Forward Dynamic Object-Oriented Program Slicing", *Proc. 1999 Conf. on Application-Specific Software Engineering and Technology*, pp. 230-237, 1999.
13. "Forward Dynamic Interprocedural Program Slicing", *Proc. 1998 Conf. on CS & I*, Research Triangle Park, NC, 1998 (with Y.-T. Song). (with Y.-T. Song).
14. "Broadcast Scheduling in Packet Radio Networks", *Proc. of the 7th Intern. Conf. on Comp. Comm. and Networks*, pp. 714-721, 1998 (with Thai Vuong).
15. "Forward Dynamic Slicing in the Presence of Structured Jump Statements", (with Yeong-Tae Song), *Proc. of the 5th ISACC*, pp. 73-81, 1997.
16. "On the Rearrangeability of Switching Networks Composed of Digital Symmetrical Matrices", (with Hai Nguyen), *Proc. 5th Intern. Conf. on Computing and Information*, Sudbury, Canada, 1993, pp. 155-159.
17. "On the Complexity of Bisimilarity of Normed Probabilistic Context-Free Processes", (with Lu Tiao), *Proc. 5th Intern. Conf. on Computing and Information*, pp. 3-7, Sudbury, Canada, 1993.
18. * "The Complexity of Deciding Branching Bisimilarity for Normed Context-Free Processes", *Proc. 30th Allerton Conference on Communication, Control and Computing*, Urbana-Champaign, Illinois, 1992.
19. * "The Complexity of Deciding Readiness and Failure Equivalence for Processes", *Proc. of the 3rd IEEE Symp. on Parallel and Distributed Processing*, Dallas, Texas, pp. 738-745, 1991.
(Invited presentation at a workshop on "Formal Languages", Intern. Center of Computer Science, Schloss Dagstuhl, Germany, Oct. 1991.)

* indicates the paper has appeared in revised form in a refereed journal

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20. * "Finite Automaton Aperiodicity Is PSPACE-Complete", *Proc. 27th Allerton Conference on Communication, Control, and Computing*, Urbana-Champaign, Illinois, 1989.
21. * "The Complexity of Ranking", *Proc. 3rd IEEE Conference "Structure in Complexity Theory"*, Washington, D.C., pp. 204-212, 1988.
22. * "A Hierarchy Theorem for Almost Everywhere Complex Sets with Application to Polynomial Complexity Degrees", (with J. Gecke and A. Selman), *Proc. 4th Symposium on Theoretical Aspects of Computer Science, Passau, West Germany, Lectures Notes in Computer Science Series*, pp. 115-125, 1987.
23. * "On the Complexity of Containment, Equivalence, and Reachability for Finite and 2-Dimensional Vector Addition Systems with States", (with R. Howell, L. Rosier and H.-C. Yen), *Proc. 4th Symposium on Theoretical Aspects of Computer Science, Passau, West Germany, Lectures Notes in Computer Science Series*, pp. 360-370, 1987.
24. "Resource-Bounded Kolmogorov Complexity of Hard Languages", *Proc. 1st IEEE Conference on "Structure in Complexity Theory"*, Berkeley, California, *Lectures Notes in Computer Science Series*, pp. 181-195, 1986.
25. "The Complexity of the Equivalence Problem for Commutative Semigroups and Symmetric Vector Addition Systems", *Proc. 17th ACM Symp. on Theory of Computing, Providence, Rhodes Island*, pp. 405-412, 1985.
26. * "Deciding the Inequivalence of Context-Free Grammars over a 1-Letter Terminal Alphabet Is Σ_2^P Complete", *Proc. 23rd IEEE Symp. Foundations of Computer Science*, Chicago, Illinois, pp. 21-31, 1982.
27. * "Commutative Grammars: The Complexity of Uniform Word Problems", *Proc. Annual Meeting of German Math. Society*, Dortmund, West Germany, p. 121, 1980.
28. * "The Complexity of Semilinear Sets", *Proc. Int. Colloq. Automata, Languages and Programming*, Noordwijkerhout, the Netherlands, pp. 324-337, 1980.
29. "On Complexity Measures Which Are Induced by Probability Distributions", *Proc. Int. Conf. Fundamentals of Computation Theory*, Berlin/Wendisch-Rietz, East Germany, ed. L. Budach, pp. 437-442, 1979.

Papers Submitted for Publication

- "Adapting Connected Dominating Sets in Wireless Ad Hoc Networks", with Jason Bolla, submitted September 2005.
- "Connected Dominating Sets in Wireless Ad Hoc Networks", with Trac Nguyen, submitted September 2005.

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- "Max Min Cluster Formation in Wireless Ad Hoc Networks", with A. Amis, R. Prakash & Thai Vuong, resubmitted for journal publication after 1st review.

Other Publications

1. "Complexity of Closeness, Sparseness and Segment Equivalence for Context-Free and Regular Languages", TR UTDCS-29-91, University of Texas at Dallas. Also in *Festschrift for Professor G. Holz's 60th Birthday*, Teubner Verlag, Germany, pp. 235-251, 1992.

Reports and Manuscripts

1. "A Rearrangement Algorithm for Switching Networks Composed of Digital Symmetrical Matrices", (with Hai Nguyen), Technical Report UTDCS-16-92, 1992, submitted for publication.
2. "On the Complexity of Bisimilarity of Normed Probabilistic Context-Free Processes", (with Lu Tian), Technical Report UTDCS-13-92, University of Texas at Dallas, 1992.
3. "Moving Tokens in Directed Graphs Is NP-Complete", (with Sang Cho), TR UTDCS-8-89.
4. "A Note on the Complexity of Deciding Bisimilarity of Normed Unary Processes", (with Lu Tian), Technical Report UTDCS-2-92, University of Texas at Dallas, 1992.

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EDUCATION

- Ph.D. Electrical and Computer Engineering, University of California, Davis, June 1999
- M.S. Electrical Engineering, University of California, Los Angeles, December 1991
- B.S. Electrical Engineering and Computer Science, with honors, University of California, Berkeley, May 1990

ACADEMIC EXPERIENCE

- 9/04-Pres., Associate Professor, University of Texas at Dallas
- 8/99-8/04 Assistant Professor, University of Texas at Dallas
- 6/95-7/99 Research Assistant, University of California, Davis
- 9/97-12/97 Associate Instructor, University of California, Davis
- 9/93-6/95 Teaching Assistant, University of California, Davis

RESEARCH PUBLICATIONS

Books:

1. J. P. Jue and V. M. Vokkarane, *Optical Burst Switched Networks*, Springer, 2005.

Journal Publications:

1. F. Farhmand and J. P. Jue, "Analysis and Implementation of Look-Ahead Window Contention Resolution with QoS Support in Optical Burst-Switched Networks," *IEEE Journal on Selected Areas in Communications*, vol. 24, no. 12, pp. 81-93, December 2006.
2. S. Varma and J. P. Jue, "Protection in Multigranular Waveband Networks," *OSA Journal of Optical Networking*, vol. 5, no. 11, pp. 790-806, November 2006.
3. T. Zhang, K. Lu, and J. P. Jue, "Shared Fiber Delay Line Buffers in Asynchronous Optical Packet Switches," *IEEE Journal on Selected Areas in Communications*, vol. 24, no. 4, pp. 113-127, April 2006.
4. J. Wang, V. Vokkarane, R. Iyrti, X. Qi, B. Raghavachari, and J. P. Jue, "Dual-Homing Protection in IP-over-WDM Switched Networks," *IEEE/OSA Journal of Lightwave Technology*, vol. 23, no. 10, pp. 3111-3124, October 2005.
5. V. Vokkarane and J. P. Jue, "Segmentation-Based Non-Preemptive Channel Scheduling Algorithms for Optical Burst-Switched Networks," *IEEE/OSA Journal of Lightwave Technology*, vol. 23, no. 10, pp. 3125-3137, October 2005.
6. F. Farhmand, Q. Zhang, and J. P. Jue, "Dynamic Traffic Grooming in Optical Burst-Switched Networks," *IEEE/OSA Journal of Lightwave Technology*, vol. 23, no. 10, pp. 3167-3177, October 2005.
7. X. Huang, F. Farhmand, and J. P. Jue, "Multicast Traffic Grooming in Wavelength-Routed WDM Mesh Networks Using Dynamically Changing Light-Trees," *IEEE/OSA Journal of Lightwave Technology*, vol. 23, no. 10, pp. 3178-3187, October 2005.
8. S. Yuan and J. P. Jue, "Dynamic Lightpath Protection in WDM Mesh Networks under Wavelength-Continuity and Risk-Disjoint Constraints," *Computer Networks Journal* (Elsevier), vol. 48, no. 2, pp. 91-112, June 2005.
9. Q. Zhang, V. Vokkarane, J. P. Jue, and B. Chen, "Absolute QoS Differentiation in Optical Burst-Switched Networks," *IEEE Journal on Selected Areas in Communications*, vol. 22, no. 9, pp. 1781-1795, November 2004.
10. T. Zhang, K. Lu, and J. P. Jue, "Differentiated Contention Resolution for QoS in Photonic Packet-Switched Networks," *IEEE/OSA Journal of Lightwave Technology*, vol. 22, no. 11, pp. 2523-2535, November 2004.
11. V. Vokkarane and J. P. Jue, "Burst Segmentation: An Approach for Reducing Packet Loss in Optical Burst Switched Networks," *SPIE/Kluwer Optical Networks Magazine*, vol. 4, no. 6, pp. 81-89, November/December 2003.
12. K. Lu, J. P. Jue, G. Xiao, I. Chianica, and T. Ozdagir, "Intermediate-Node Initiated Reservation (IR): A New Signaling Scheme for Wavelength-Routed Networks," *IEEE Journal on Selected Areas in Communications - Optical Communications and Networking Series*, vol. 21, no. 8, pp. 1285-1294, October 2003.
13. V. Vokkarane and J. P. Jue, "Prioritized Burst Segmentation and Composite Burst Assembly Techniques for QoS Support in Optical Burst Switched Networks," *IEEE Journal on Selected Areas in Communications*, vol. 21, no. 7, pp. 1198-1209, September 2003.
14. S. Yuan and J. P. Jue, "A Shared Protection Routing Algorithm for Optical Networks," *SPIE Optical Networks Magazine*, vol. 3, no. 3, pp. 32-39, May/June 2002.
15. B. H. Simov, J. P. Jue, and S. Tridandapani, "Integrating Security in the MAC Layer of WDM Optical Networks," *Kluwer Photonic Network Communications*, vol. 4, no. 1, pp. 19-35, January 2002.
16. H. Zaig, J. P. Jue, L. Sahasrabudhe, S. Ramamurthy, and B. Mukherjee, "Dynamic Lightpath Establishment in Wavelength-Routed WDM Networks," *IEEE Communications Magazine*, vol. 39, no. 9, pp. 100-108, September 2001.

17. H. Zhang, J. P. Jue, and B. Mukherjee, "Capacity Allocation and Contention Resolution in a Photonic Slot Routing All-Optical Mesh Network," *IEEE/OSA Journal of Lightwave Technology*, vol. 18, no. 12, pp. 1728-1741, December 2000.
18. J. P. Jue and B. Mukherjee, "Multicast Configuration Multihop Protocols: A New Class of Protocols for Packet-Switched WDM Optical Networks," *IEEE/ACM Transactions on Networking*, vol. 8, no. 5, pp. 631-642, October 2000.
19. H. Zhang, J. P. Jue, and B. Mukherjee, "A Review of Routing and Wavelength Assignment Approaches for Wavelength-Routed Optical Networks," *IEEE Optical Networks Magazine*, vol. 1, no. 1, pp. 47-60, Jan. 2000.
20. J. P. Jue and B. Mukherjee, "The Advantages of Partitioning Multicast Transmissions in a Single-Hop Optical WDM Network," *Photonic Network Communications*, vol. 1, no. 2, pp. 111-124, 1999.
21. M. S. Borella, J. P. Jue, and B. Mukherjee, "Simple Scheduling Algorithms for Use with a Waveguide Grating Multiplexer Based Local Optical Network," *Photonic Network Communications*, vol. 1, no. 1, pp. 35-48, 1999.
22. J. P. Jue and D. Ghosal, "Design and Analysis of a Replicated Server Architecture for Supporting IP Host Mobility," *Cluster Computing Special Issue on Mobile Computing*, vol. 1, no. 2, pp. 249-260, 1998.
23. M. S. Borella, J. P. Jue, D. Banerjee, B. Ramamurthy, and B. Mukherjee, "Optical Components for WDM Lightwave Networks," *Proceedings of the IEEE*, vol. 85, no. 8, pp. 1274-1307, August 1997.
24. J. P. Jue, M. S. Borella, and B. Mukherjee, "Performance Analysis of the Rainbow WDM Optical Network Prototype," *IEEE Journal on Selected Areas in Communications*, vol. 14, no. 5, pp. 945-951, June 1996.

Book Chapters:

1. Chlamtac, W. R., Fratta, and J. P. Jue, "Emerging Optical Network Management," *The Handbook of Optical Communication Networks*, pp. 121-148, ed. M. Ilyas and H. T. Moufah, CRC Press, 2003.
2. J. P. Jue, "An Overview of Lightpath Establishment in Wavelength-Routed WDM Optical Networks," *Advances in Optical Networks*, pp. 99-122, ed. D.-Z. Du and L. Run, Kluwer Academic Publishers, 2001.
3. B. Ramamurthy and J. P. Jue, "Fibers, Lasers, Receivers, and Amplifiers," *Optical WDM Networks: Principles and Practice*, pp. 27-50, ed. K. M. Svrluga and S. Subramaniam, Kluwer Academic Publishers, 2000.
4. Chlamtac and J. P. Jue, "Optical WDM Networks: Future Vision," *Optical WDM Networks: Principles and Practice*, pp. 343-3509, ed. K. M. Svrluga and S. Subramaniam, Kluwer Academic Publishers, 2000.

Conference Publications:

1. Q. She, X. Huang, and J. P. Jue, "A Novel Graph Model for Maximum Survivability in Mesh Networks under Multiple Generic Failures," to appear, *Proceedings, IEEE ICC 2007*, Glasgow, Scotland, June 2007.
2. X. Huang, Q. She, V. M. Vokkarane, and J. P. Jue, "Manyestoring over Optical Burst-Switched Networks," to appear, *Proceedings, IEEE ICC 2007*, Glasgow, Scotland, June 2007.
3. Q. She, X. Huang, and J. P. Jue, "Survivable Routing for Segment Protection under Multiple Failures," to appear, *Proceedings, IEEE/OSA Optical Fiber Communication Conference 2007*, Anaheim, CA, March 2007.
4. Q. She, X. Huang, and J. P. Jue, "Maximum Survivability Using Two Disjoint Paths under Multiple Failures in Mesh Networks," *Proceedings, IEEE Globecom 2006*, San Francisco, CA, November 2006.
5. M. M. Hasan, X. Huang, and J. P. Jue, "Survivable Wireless Access Network Design with Dual-Homing Capabilities," *Proceedings, IEEE Globecom 2006*, San Francisco, CA, November 2006.
6. X. Huang, Q. She, T. Zhang, K. Lu, and J. P. Jue, "Small Group Multicast with Deflection Routing in Optical Burst Switched Networks," *Proceedings, International Workshop on Optical Burst/Packet Switching (WOBPS)*, San Jose, CA, October 2006.
7. M. De Leener, F. Farahmand, K. Lu, T. Zhang, P. Thysebaert, B. Voelckart, F. De Turck, B. Dhoei, P. Demeester, and J. P. Jue, "Anycast Algorithms Supporting Optical Burst Switched Grid Networks," *Proceedings, International Conference on Networking and Services (ICNS) 2006*, Santa Clara, CA, July 2006.
8. X. Huang, J. Wang, V. M. Vokkarane, and J. P. Jue, "Fault-tolerant Wireless Access Network Design for Dual-Homed Users," *Proceedings, IEEE Infocom 2006*, Barcelona, Spain, April 2006.
9. Q. She, X. Huang, and J. P. Jue, "Maximum Survivability under Multiple Failures," *Proceedings, IEEE/OSA Optical Fiber Communication Conference 2006*, Anaheim, CA, March 2006.
10. Q. Zhang, V. Vokkarane, Y. Wang, and J. P. Jue, "Analysis of TCP over Optical Burst-Switched Networks with Burst Retransmission," *Proceedings, IEEE Globecom 2005*, vol. 4, pp. 1978-1983, St. Louis, MO, November 2005.
11. F. Farahmand, Q. Zhang, and J. P. Jue, "A Closed-Loop Rate-Based Contention Control for Optical Burst Switched Networks," *Proceedings, IEEE Globecom 2005*, vol. 4, pp. 1989-1993, St. Louis, MO, November 2005.
12. V. Vokkarane, J. Wang, and J. P. Jue, "Coordinated Survivability in IP-over-Optical Networks with IP-Layer Dual-Homing and Optical-Layer Protection," *Proceedings, IEEE/CraeteNet BroadNet 2005*, pp. 259-268, Boston, MA, October 2005.
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14. F. Farahmand, Q. Zhang, and J. P. Jue, "Data Burst Grooming in Optical Burst-Switched Networks," *Proceedings, IEEE/CraeteNet BroadNet 2005*, pp. 312-322, Boston, MA, October 2005.
15. F. Farahmand, M. De Leener, P. Thysebaert, B. Voelckart, F. De Turck, B. Dhoei, P. Demeester, and J. P. Jue, "A Multi-Layered Approach to Optical Burst-Switched Based Grids," *IEEE/CraeteNet Fifth International Workshop on Optical Burst/Packet Switching (WOBPS) 2005*, pp. 127-134, Boston, MA, October 2005.

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17. F. Farahmand, J. Jue, V. Vokkarane, J. J. P. C. Rodrigues, and M. M. Fraine, "A Layered Architecture for Supporting Optical Burst Switching," *Proceedings of Telecommunications 2005*, IEEE Computer Society, Lisbon, Portugal, pp. 213-218, July 17-20, 2005.
18. T. Zhang, K. Lu, and J. P. Jue, "An Analytical Model for Shared Fiber-Delay Line Buffers in Asynchronous Optical Packet and Burst Switches," *Proceedings, IEEE ICC 2005*, vol. 3, pp. 1636-1640, Seoul, Korea, May 2005.
19. X. Huang, V. M. Vokkarane, and J. P. Jue, "Burst Cloning: A Proactive Scheme to Reduce Data Loss in Optical Burst-Switched Networks," *Proceedings, IEEE ICC 2005*, vol. 3, pp. 1673-1677, Seoul, Korea, May 2005.
20. S. Yuan, S. Varma, and J. P. Jue, "Minimum-Color Path Problems for Reliability in Mesh Networks," *Proceedings, IEEE Infocom 2005*, vol. 4, pp. 2658-2669, Miami, FL, March 2005.
21. T. Zhang, K. Lu, and J. P. Jue, "Architectures and Performance of Fiber Delay Line Buffers in Packet-Based Multilayer Optical Networks," *Proceedings, IEEE/OSA Optical Fiber Communication Conference 2005*, vol. 1, OMEB74, Anaheim, CA, March 2005.
22. S. Varma and J. P. Jue, "Protection in Multi-Granular Waveband Networks," *Proceedings, IEEE Globecom 2004*, vol. 3, pp. 1759-1763, Dallas, TX, November 2004.
23. Q. Zhang, V. Vokkarane, B. Chen, and J. P. Jue, "Path Clustering: An Approach to Implement Absolute QoS Differentiation in Optical Burst-Switched Networks," *Proceedings, IEEE Globecom 2004*, vol. 3, pp. 1999-2003, Dallas, TX, November 2004.
24. X. Huang, F. Farahmand, and J. P. Jue, "An Algorithm for Traffic Grooming in WDM Mesh Networks with Dynamically Changing Light-Trails," *Proceedings, IEEE Globecom 2004*, vol. 3, pp. 1813-1817, Dallas, TX, November 2004.
25. S. Yuan and J. P. Jue, "Dynamic Path Protection in WDM Mesh Networks under Wavelength Continuity Constraint," *Proceedings, IEEE Globecom 2004*, vol. 3, pp. 2019-2023, Dallas, TX, November 2004.
26. S. Yuan and J. P. Jue, "Dynamic Path Protection in WDM Mesh Networks under Risk-Disjoint Constraint," *Proceedings, IEEE Globecom 2004*, vol. 3, pp. 1770-1774, Dallas, TX, November 2004.
27. K. Lu, G. Xiao, J. P. Jue, T. Zhang, S. Yuan, and I. Chlamtac, "Blocking Analysis of Multilayer Wavelength-Routed Networks," *Proceedings, IEEE Globecom 2004*, vol. 3, pp. 1958-1962, Dallas, TX, November 2004.
28. F. Farahmand, Q. Zhang, and J. P. Jue, "A Feedback-Based Contention Avoidance Mechanism for Optical Burst Switching Networks," *Proceedings, 3rd International Workshop on Optical Burst Switching*, San Jose, CA, October 2004.
29. F. Farahmand, X. Huang, and J. P. Jue, "Efficient Online Traffic Grooming Algorithms in WDM Mesh Networks with Drop-and-Continue Node Architecture," *Proceedings, BroadNet 2004*, pp. 180-189, San Jose, CA, October 2004.
30. T. Zhang, K. Lu, and J. P. Jue, "Differentiated Contention Resolution for QoS in Photonic Packet-Switched Networks," *Proceedings, IEEE ICC 2004*, vol. 3, pp. 1599-1603, Paris, France, June 2004.
31. V. Vokkarane, J. Wang, R. Jothi, X. Qi, B. Raghavachari, and J. P. Jue, "Dynamic Dual-Homing Protection in WDM Mesh Networks," *Proceedings, IEEE ICC 2004*, vol. 3, pp. 1644-1648, Paris, France, June 2004.
32. A. Gurnasir, I. Chlamtac, and J. P. Jue, "Light-Frames: A Pragmatic Framework for Optical Packet Transport," *Proceedings, IEEE ICC 2004*, vol. 3, pp. 1537-1542, Paris, France, June 2004.
33. J. Wang, V. Vokkarane, X. Qi, and J. P. Jue, "Dual-Homing Protection in WDM Mesh Networks," *Proceedings, IEEE/OSA Optical Fiber Communication Conference 2004*, vol. 1, pp. 557-559, Los Angeles, CA, February 2004.
34. F. Farahmand and J. P. Jue, "Supporting QoS with Look-Ahead Window Contention Resolution in Optical Burst-Switched Networks," *Proceedings, IEEE Globecom 2003*, San Francisco, CA, vol. 5, pp. 2699-2703, December 2003.
35. Q. Zhang, V. Vokkarane, B. Chen, and J. P. Jue, "Early Drop and Wavelength Grouping Schemes for Providing Absolute QoS Differentiation in Optical Burst-Switched Networks," *Proceedings, IEEE Globecom 2003*, San Francisco, CA, vol. 5, pp. 2694-2698, December 2003.
36. G. Thudine, V. Vokkarane, and J. P. Jue, "Dynamic Congestion-Based Load Balanced Routing in Optical Burst-Switched Networks," *Proceedings, IEEE Globecom 2003*, San Francisco, CA, vol. 5, pp. 2628-2632, December 2003.
37. V. Vokkarane and J. P. Jue, "Segmentation-Based Non-Preemptive Scheduling Algorithms for Optical Burst-Switched Networks," *Proceedings, First International Workshop on Optical Burst Switching (WOBPS)*, Dallas, TX, October 2003.
38. F. Farahmand, V. Vokkarane, and J. P. Jue, "Practical Priority Contention Resolution for Slotted Optical Burst-Switched Networks," *Proceedings, First International Workshop on Optical Burst Switching (WOBPS)*, Dallas, TX, October 2003.
39. K. Lu, J. P. Jue, G. Xiao, I. Chlamtac, and T. Ozgur, "A Distributed Signaling Scheme for Provisioning Dynamic Traffic in Wavelength-Routed Networks," *Proceedings, Opticon 2003*, Dallas, TX, vol. 5285, pp. 151-162, October 2003.
40. Q. Zhang, V. Vokkarane, B. Chen, and J. P. Jue, "Early Drop Scheme for Providing Absolute QoS Differentiation in Optical Burst-Switched Networks," *Proceedings, IEEE High Performance Switching and Routing 2003*, Torino, Italy, June 2003.
41. F. Farahmand and J. P. Jue, "Look-Ahead Window Contention Resolution in Optical Burst Switched Networks," *Proceedings, IEEE High Performance Switching and Routing 2003*, Torino, Italy, June 2003.
42. K. Lu, J. P. Jue, T. Ozgur, G. Xiao, and I. Chlamtac, "Intermediate Node Initiated Reservation (IIR): A New Signaling Scheme for Wavelength-Routed Networks with Sparse Conversion," *Proceedings, IEEE ICC 2003*, Anchorage, AK, vol. 2, pp. 1386-1390, May 2003.
43. T. Ozgur, M.-A. Park, and J. P. Jue, "Label Prioritization in GMPLS-Centric All-Optical Networks," to appear in *Proceedings, IEEE ICC 2003*, Anchorage, AK, vol. 2, pp. 1283-1287, May 2003.

44. V. M. Vokkarane, G. Thodime, V. Challaigulla, and J. P. Jue, "Channel Scheduling Algorithms using Burst Segmentation and FDLS for Optical Burst-Switched Networks," *Proceedings. IEEE ICC 2003*, Anchorage, AK, vol. 2, pp. 1443-1447, May 2003.
45. R. Karanam, V. M. Vokkarane, and J. P. Jue, "Intermediate Node Initiated (INI) Signaling: A Hybrid Reservation Technique for Optical Burst-Switched Networks," *Proceedings. IEEE/OSA Optical Fiber Communication Conference 2003*, Atlanta, GA, vol. 1, pp. 213-215, March 2003.
46. V. M. Vokkarane, Q. Zhang, J. P. Jue, and B. Chen, "Generalized Burst Assembly and Scheduling Techniques for QoS Support in Optical Burst Switched Networks," *Proceedings. IEEE Globecom 2002*, Taipei, Taiwan, vol. 3, pp. 2747-2751, November 2002.
47. A. Gurnate and J. P. Jue, "A Scheduling Procedure for Control Signaling in an Optical Burst Switched Network," *Proceedings. International Conference on Optical Communications and Networks*, Singapore, November 2002.
48. V. M. Vokkarane, K. Haridasen, and J. P. Jue, "Threshold-Based Burst Assembly Policies for QoS Support in Optical Burst-Switched Networks," *Proceedings. SPIE OptComm 2002*, Boston, MA, July 2002.
49. J. P. Jue, "An Algorithm for Loopless Deflection in Photonic Packet-Switched Networks," *Proceedings. IEEE ICC 2002*, New York, NY, vol. 5, pp. 2776-2780, April 2002.
50. V. M. Vokkarane, J. P. Jue, and S. Sitaranan, "Burst Segmentation: An Approach for Reducing Packet Loss in Optical Burst Switched Networks," *Proceedings. IEEE ICC 2002*, New York, NY, vol. 5, pp. 2673-2677, April 2002.
51. V. M. Vokkarane and J. P. Jue, "Prioritized Routing and Burst Segmentation for QoS in Optical Burst-Switched Networks," *Proceedings. IEEE/OSA Optical Fiber Communication Conference 2002*, Anaheim, CA, pp. 221-222, March 2002.
52. J. P. Jue and G. Xiao, "Analysis of Blocking Probability for Connection Management Schemes in Optical Networks," *Proceedings. IEEE Globecom 2001*, San Antonio, TX, vol. 3, pp. 1546-1550, November 2001.
53. S. Yuan and J. P. Jue, "A Heuristic Routing Algorithm for Shared Protection in Connection-Oriented Networks," *Proceedings. SPIE OptComm 2001*, Denver, CO, vol. 4599, pp. 142-152, August 2001.
54. J. P. Jue and G. Xiao, "An Adaptive Routing Algorithm with a Distributed Control Scheme for Wavelength-Routed Optical Networks," *Proceedings. Ninth International Conference on Computer Communications and Networks (IC3N'2000)*, Las Vegas, NV, pp. 192-197, October 2000.
55. H. Zang, J. P. Jue, and B. Mukherjee, "Photonic Slot Routing in All-Optical WDM Mesh Networks," *Proceedings. IEEE Globecom '99*, Rio de Janeiro, Brazil, vol. 2, pp. 1449-1453, December 1999.
56. H. Zang, L. Sathasubudine, J. P. Jue, S. Ramamurthy, and B. Mukherjee, "Connection Management for Wavelength-Routed WDM Networks," *Proceedings. IEEE Globecom '99*, Rio de Janeiro, Brazil, vol. 2, pp. 1428-1432, December 1999.
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58. J. P. Jue and B. Mukherjee, "Multiconfiguration Multiprotocol (MMPs): A New Class of Protocols for Packet-Switched WDM Optical Networks," *Proceedings. IEEE Infocom '99*, San Francisco, CA, vol. 2, pp. 816-823, March 1998.
59. J. P. Jue and B. Mukherjee, "The Advantages of Partitioning Multicast Transmissions in a Single-Hop Optical WDM Network," *Proceedings. IEEE International Conference on Communications 97*, Montreal, Quebec, vol. 1, pp. 427-431, June 1997.
60. J. P. Jue and D. Ghosal, "Design and Analysis of Replicated Servers to Support IP-Host Mobility in Enterprise Networks," *Proceedings. IEEE International Conference on Communications 97*, Montreal, Quebec, vol. 3, pp. 1256-1260, June 1997.
61. M. S. Borella and J. P. Jue, "Wavelength Routers in WDM Local Area Networks," *Proceedings. 39th Midwest Symposium on Circuits and Systems*, August 1996.
62. J. P. Jue, M. S. Borella, and B. Mukherjee, "Performance Analysis of the Rainbow WDM Optical Network Prototype," *Proceedings. IEEE International Conference on Communications 95*, Seattle, WA, vol. 1, pp. 282-286, June 1995.

PROFESSIONAL ACTIVITIES

- Vice Chair, IEEE Communications Society Technical Committee on Optical Networking, January 2006-Present.
- Secretary, IEEE Communications Society Technical Committee on Optical Networking, January 2004-December 2005.
- Co-Chair, IEEE/CraetNet Fifth International Workshop on Optical Burst/Packet Switching (WOBS) 2005, Boston, MA.
- Technical Program Vice-Chair, Globecom 2005, Photonic Technologies for Communications Symposium, St. Louis, MO.
- General Co-Chair, BroadNet 2004 - Broadband Optical Networking Symposium, San Jose, CA.
- Editorial Board, IEEE Communications Surveys & Tutorials, 2002-Present.
- Guest Editor, OSA Journal of Optical Networking Special Issue on Wavelength Switching, Routing, and Grooming 2006.
- Guest Editor, Kluwer Photonic Networks Communications Special Issue on IP-Centric Control and Management in WDM Optical Networks.
- Feature Editor, SPIE/Kluwer Optical Networks Magazine, 1999-2003.
- Local Chair, Workshop on Optical Burst Switching 2003, Dallas, TX.
- Technical Program Chair, SPIE/IEEE/ACM OptComm 2000, Dallas, TX.
- Technical Program Co-Chair, Optical Networks Workshop 2000, University of Texas at Dallas, Richardson, TX.
- Technical Program Committee: IEEE Globecom 2002-2007, IEEE ICC 2003-2007, OptComm 2001-2003, IEEE/CraetNet Broadnets 2005-2006.

- Technical Program Committee, Workshop on Optical Burst Switching 2003-2007.
- Reviewer (Journals): IEEE/ACM Transactions on Networking, IEEE Transactions on Communications, IEEE Journal on Selected Areas in Communications, IEEE/OSA Journal of Lightwave Technology, IEEE Transactions on Systems Man and Cybernetics Part C, IEEE Network, IEEE Communications Magazine, SPIE/Kluwer Optical Networks Magazine, Journal of High Speed Networks, Journal of Systems Architecture, IEEE Communication Letters, IEEE Communications Surveys and Tutorials, Wiley Intl. Journal on Wireless Communications and Mobile Computing, The Computer Journal, Computer Networks, Journal of Communications and Networks, OSA Journal of Optical Networking, Performance Evaluation Journal (Elsevier), Optical Switching and Networking (Elsevier), Computer Communications Journal (Elsevier), IEEE Photonics Technology Letters, Journal of Computer Science and Technology.
- Reviewer (conferences): IEEE Infocom, IEEE ICC, IEEE Globecom, SPIE OptComm, Sicon, 15th Intl. Teletraffic Congress, 7th Intl. Conference on Distributed Computing Systems, Eighth IEEE Symposium on Parallel and Distributed Processing, IEEE Workshop on High Performance Switching and Routing, IEEE Intl. Conference on Network Protocols.
- Senior Member, IEEE

AWARDS AND HONORS

- NSF Career Award, 2002.
- Best Paper Award, IEEE Globecom 2005 Symposium on Photonic Technologies for Communications, 2005.
- GAANN Fellowship, University of California, Davis, Department of Electrical and Computer Engineering, 1993.
- Electrical Engineering Department Fellowship, University of California, Los Angeles, 1990.
- Alumni Scholarship, University of California, Berkeley, 1986.

FUNDING

- Provisioning Differentiated Services on IP-Centric Optical Network Control Plane, Alcatel, \$103,694, 11/8/01-8/7/02, Co-PI: Imrich Chumac.
- CAREER: Design and Analysis of Photonic Packet-Switched Networks, NSF, \$320,953, 8/1/02-7/31/07.
- Student Travel Support for BroadNet 2004 Conference, NSF, \$16,000, 8/7/04-1/31/05, Co-PI: Zhenzhang Zhang.
- NeTS-NR Collaborative Research: Multi-Layer Dual-Homing Survivability for the Next-Generation Internet, NSF, \$252,000, 9/1/04-8/31/07.
- NeTS-NBD Collaborative Research: SOON: Service-Oriented Optical Networks, NSF, \$235,512, 9/1/06-8/31/09.

STUDENTS GRADUATED

Ph.D.

- Farid Faruhamad, Ph.D. EE, 2005, Assistant Professor, Central Connecticut State University
- Qiong Zhang, Ph.D. CS (co-advisor), 2005, Assistant Professor, Arizona State University West Campus (Honorable Mention, UTD Best Dissertation Award, 2005)
- Tao Zhang, Ph.D. CS, 2005, Assistant Professor, New York Institute of Technology
- Vinod M. Vokkarane, Ph.D. CS, 2004, Assistant Professor, University of Massachusetts Dartmouth (UTD Best Dissertation Award, 2004)
- Shuangli Yuan, Ph.D. CS, 2004, Assistant Professor, University of Houston - Downtown
- Kejie Lu, Ph.D. EE (co-advisor), 2003, Assistant Professor, University of Puerto Rico at Mayaguez

M.S.

- Gurm Prasad Thodime, M.S. CS, 2003
- Ravikiran Karanam, M.S. CS, 2002
- Sudhakar Pichumani, M.S. CS, 2002

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RESEARCH INTERESTS

My research interests lie at the intersection of Privacy, Security, Data Mining and Databases: Security and Privacy issues raised by data mining; Distributed Data Mining techniques; Security issues in Databases; Applied Cryptography and Secure Multi-Party Computation techniques; Use of data mining for intrusion detection.

EDUCATION

Purdue University

Ph.D., Computer Science, August 2005.

- Dissertation Topic: "Privacy Preserving Data Mining on Horizontally Partitioned Data." Data mining can extract important knowledge from large data collections – but sometimes these collections are split among various parties. Privacy concerns may prevent the parties from directly sharing the data, and some types of information about the data. My dissertation addresses secure mining of data over horizontally partitioned data. The methods incorporate cryptographic techniques to minimize the information shared, while adding little overhead to the mining task. Under reasonable assumptions, techniques developed are proved to reveal nothing other than the final data mining result. I also addressed related privacy issues such as: how to use learned data mining models securely and the potential privacy effect of the data mining results.

- Advisor: Chris Clifton

Graduate Certificate in Applied Statistics, May 2005.
M.S., Computer Science, May 2002.

Middle East Technical University

B.S., Computer Engineering with Minor in Finance, June 2000. (Ranked 3rd in the class)
Ankara, Turkey

PROFESSIONAL EXPERIENCE

University of Texas at Dallas

Assistant Professor in the Department of Computer Sciences

Purdue University

Research Assistant in the Department of Computer Sciences (affiliated with CERIAS and ICDS). Work included current Ph.D. research.

September, 2005 - present

December, 2001 - August, 2005

Teaching Assistant for *Computer Architecture (CS 250)*, *Compilers (CS 362)*, *Principles and Practice*. Work involved instructing recitation sessions, grading and assisting students.

IBM Almaden Research Lab

Summer Intern, Worked on Database support for encrypted data

Mentor: Dr. Rakesh Agrawal

May 2004 to August, 2004

NEC CERC Research Labs

Summer Intern, Worked on Data Streams and Database Caching

Mentor: Dr. Wen-Syan Li

May 2003 to August, 2003

NEC CERC Research Labs

Summer Intern, Worked on Data Streams and Live Streaming Media. Developed a scalable server farm scheduling algorithm for streaming media. (US Patent Pending. Patent Application NO # 20040265219)

Mentor: Dr. Wen-Syan Li

Information Technology Institute of National Science Foundation of Turkey, Ankara, Turkey

Part Time IT worker. Developed and Tested Strong RSA primes generation software for national digital signature.

Software Research Development Center, METU, Ankara, Turkey

Summer Intern. Developed software that stores navigation history of the user in XML for potential use in web mining.

Information Technology Institute of National Science Foundation of Turkey, Ankara, Turkey

Summer Intern. Implemented high speed RSA algorithm.

PUBLICATIONS

Journals

- Jaldeep Vaidya, Murat Kantarcioglu and Chris Clifton, "Privacy Preserving Naive Bayes Classification" The VLDB Journal, VLDB Endowment, to appear
- Chris Clifton, Ananth Iyer, Richard Chio, Wei Jiang, Murat Kantarcioglu, and Jaldeep Vaidya, "An Approach to Identifying Beneficial Collaboration Securely in Decentralized Logistics Systems", Management & Service Operations Management, INFORMS, Linthicum, Maryland, to appear.
- Murat Kantarcioglu and Chris Clifton, "Privacy Preserving Data Mining of Association Rules on Horizontally Partitioned Data", Transactions on Knowledge and Data Engineering, 16(9): 1026-1037 (2004), IEEE Computer Society Press, Los Alamitos, CA.
- Wen-Syan Li, Kemal Atintas and Murat Kantarcioglu, "Adaptive Data Center Synchronization for Load and Precision Sensitive Web Applications", Data & Knowledge Engineering, 51(3): 295-323 (2004).

Book Chapters

- Bhavani Thuraisingham, Latifur Khan, Ganesh Subbiah, Ashraf Alai, Murat Kantarcioglu, "Security and Privacy for Geospatial Data Management, Integration and Mining", in Encyclopedia of Geospatial Information Science, 2006. Springer Publications.
- Chris Clifton, Murat Kantarcioglu and Jaldeep Vaidya, "Privacy-Preserving Data Mining" in Foundations and Advances in Data Mining, Wesley Chu and T.Y. Lin, eds., Studies in Fuzziness and Soft Computing vol. 180, Springer-Verlag, 2005.
- Chris Clifton, Murat Kantarcioglu and Jaldeep Vaidya, "Defining Privacy for Data Mining", in Data Mining: Next Generation Challenges and Future Directions, AAAI Press, 2004, pp. 255-272.

Refereed Conferences and Workshops

- Li Liu, Murat Kantarcioglu, and Bhavani Thuraisingham, "The Applicability of the Perturbation Model-based Privacy Preserving Data Mining for Real-world Data", International Workshop on Privacy Aspects of Data Mining (PADM'06), Hong Kong, 2006
- Rakesh Agrawal, Dmitri Asonov, Murat Kantarcioglu, Yaping Li, "Sovereign Joins", 22nd Int'l Conf on Data Engineering, Atlanta, 2006
- Li Liu, Bhavani Thuraisingham, Murat Kantarcioglu and Latifur Khan, "An Adaptable Perturbation Model of Privacy Preserving Data Mining", Workshop on Privacy and Security Aspects of Data Mining, Held in Conjunction with the Fifth IEEE International Conference on Data Mining (ICDM 2005)

- Murat Kantarcioglu and Chris Clifton, "Security Issues in Querying Encrypted Data" 19th Annual IFIP WG 11.3 Working Conference on Database and Applications Security, 2005
- Murat Kantarcioglu, Jaldeep Vaidya, Chris Clifton, "Using Secure Coprocessors for Implementing Privacy-Preserving Data Mining Toolbox", PKDD Workshop on Privacy, Security Issues in Data Mining 2004. (Invited Paper)
- Murat Kantarcioglu and Chris Clifton "Privacy-Preserving Distributed K-nn Classifier", European Conf. on Principles of Data Mining and Knowledge Discovery (PKDD '04) 2004.
- Murat Kantarcioglu, Chris Clifton and Jiahuan Jin "When Do Data Mining Results Violate Privacy?", ACM SIGKDD International Conference on Knowledge Discovery and Data Mining 2004.
- Chris Clifton, Murat Kantarcioglu, AnHai Doan, Gunther Schadow, Jaldeep Vaidya, Ahmed K. Elmagarmid and Dan Suchy, "Privacy-preserving data integration and sharing", The ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge (DMKD'2004) 2004.
- Murat Kantarcioglu and Jaldeep Vaidya, "Privacy Preserving Naive Bayes Classifier for Horizontally Partitioned Data", ICDM 2004 Workshop on Privacy, Security, and Data Mining, Melbourne FL.
- Murat Kantarcioglu and Chris Clifton, "Assuring Privacy when Big Brother is Watching", The 8th ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery (DMKD'2003), June 13, 2003, San Diego, California.
- Murat Kantarcioglu and J.S Vaidya, "A new architecture for Privacy- Preserving Data Mining", ICDM Workshop on Privacy, Security, and Data Mining, December 9-12, 2002, Maebashi City, Japan.
- Murat Kantarcioglu and Chris Clifton, "Privacy-preserving Distributed Mining of Association Rules on Horizontally Partitioned Data", The ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery 2002.
- Ismail H. Toroslu and Murat Kantarcioglu, Mining Cyclically Repeated Patterns. DaWaK 2001: 83-92.

Editor Refereed Publications

- Chris Clifton, Murat Kantarcioglu, Jaldeep Vaidya, Xiaodong Lin, and Michael Zhu, "Tools for Privacy Preserving Distributed Data Mining", ACM SIGKDD Explorations 4(2), December 2002. Invited paper.
- Chris Clifton, Murat Kantarcioglu and Jaldeep Vaidya, "Defining Privacy for Data Mining", Proceedings of the National Science Foundation Workshop on Next Generation Data Mining, November 1-3, 2002, Baltimore, MD. Invited paper.

PRESENTATIONS

- "Adversarial Learning" at Rutgers University, March, 2006
- "Privacy-preserving Distributed Data Mining", at the State University of New York at Buffalo, March, 2005
- "Using Secure Coprocessors for Implementing Privacy-Preserving Data Mining Toolbox", PKDD Workshop on Privacy, Security Issues in Data Mining 2004. (Invited Paper)
- "Privacy-Preserving Distributed K-nn Classifier", European Conf. on Principles of Data Mining and Knowledge Discovery (PKDD '04) 2004.
- "Privacy-preserving data integration and sharing", The ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge (DMKD'2004) 2004.
- "Privacy Preserving Naive Bayes Classifier for Horizontally Partitioned Data", ICDM 2004 Workshop on Privacy, Security, and Data Mining, Melbourne FL.

- "Assuring Privacy when Big Brother is Watching", The 8th ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery (DMKD'2003), June 13, 2003, San Diego, California.
- "Privacy-preserving Distributed Mining of Association Rules on Horizontally Partitioned Data", The ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery 2002.

HONORS

- CERIAS Diamond Award for Academic Achievement
- Member of Upsilon Pi Epsilon, Computer Science Honor Society
- Ranked in the top 100 in the entrance and scholarship examinations among approximately one million Turkish students.
- Award from minister of education of Turkey for being third in one of the nation wide scholarship exam.

PROFESSIONAL ACTIVITIES

- Program Committee Member, Twenty-Second AAAI Conference on Artificial Intelligence (AAAI-07)
- Program Committee Member, International Workshop on Privacy Aspects of Data Mining (PADM'06)
- Program Committee Member, IEEE International Conference on Data Mining, (ICDM 06)
- Program Committee Member, 8th International Conference on Data Warehousing and Knowledge Discovery (DAWAK) 06
- Program Committee Member, European Conf. on Principles of Data Mining and Knowledge Discovery (PKDD) '05
- Reviewer, Kentucky Science and Engineering Foundation (KSEF), 2006
- Reviewer, Estoulan Science Foundation, 2005
- Reviewer, Transactions on Knowledge and Data Engineering, IEEE.
- Reviewer, Transactions on Knowledge and Database Systems, ACM.
- Reviewer, Workshop on Privacy and Security Aspects of Data Mining, associated with the Fourth IEEE International Conference on Data Mining
- Reviewer, IEEE International Conference on Data Mining, (ICDM 05)
- Reviewer, SIAM Conference on Data Mining (SDM 06)
- Reviewer, International Conference on Data Engineering 05
- Reviewer, International Conference on Data Warehousing and Knowledge Discovery (DAWAK) 03

REFERENCES

Available upon request

Curriculum Vitae

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Computer Science Department
University of Texas at Dallas
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Education

- Ph.D. in Computer Science, University of Southern California (USC), August, 2000
Dissertation: Ontology-based Information Selection.
- M.S. in Computer Science, University of Southern California, December, 1996.
- B.S. in Computer Science and Engineering, Bangladesh University of Engineering and Technology, November, 1993.

Work Experience

- Associate Professor: Computer Science Dept., University of Texas at Dallas, since September, 2006.
- Assistant Professor: Computer Science Dept., University of Texas at Dallas, September, 2000 – August 2006.
- Graduate Research Assistant: Integrated Media Systems Center, USC, September, 1997–August, 2000, and Information Sciences Institute (ISI), USC, September, 1995 – August, 1997.
- Lecturer: Computer Science & Engineering, Bangladesh University of Engineering and Technology, December, 1993 – August, 1995.

Service to the Profession:

- Associate Editor of Computer Standards and Interface Journal by Elsevier Publishing.
- Guest Editor of *International Journal of Knowledge and Information Systems (KAIS)*, Vol. 10, No. 2, Springer (2006).
- Guest Editor of *International Journal of Multimedia Tools and Applications*, Springer.
- Member of *IEEE Kanal Award Committee*, 2005 and 2006.

Keynote Speech

- Matching Words and Pictures: Problems, Application and Progress, *9th International Conference on Computer and Information Technology (ICCIT)*, 2006.

Chair/Co-Chair:

- Program Co-Chair of *ACM 6th International Workshop on Multimedia Data Mining (MDM/KDD2005)*, August 2005, Chicago, IL, USA.

- Program Chair of *ACM 5th International Workshop on Multimedia Data Mining (MDM/KDD2004)*, August 2004, Seattle, Washington.
- Program Co-Chair in *First International Workshop on Geographic and Biological Data Management (GBDM04)* in conjunction with COMPSAC 2004, September 2004, Hong Kong.

Program Committee Member of

- *12th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, August 2006, Philadelphia, USA.
- *IEEE International Conference on Data Mining (ICDM)*, ICDM 2006 December 18 - 22, 2006, Hong Kong.
- *17th European Conference on Machine Learning and 10th European Conference on Principles and Practice of Knowledge Discovery in Databases*, September 2006, Berlin, Germany
- Program Committee Member of *International Conference on Computers and Information Technology*, December 2006, Dhaka, Bangladesh.
- *11th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, August 2005, Chicago, Illinois.
- *Workshop on Clustering High Dimensional Data and Its Applications*, in Conjunction with the Fifth SIAM International Conference on Data Mining (SDM 2005), April 2005, Newport Beach, California.
- *International Conference on Computers and Information Technology*, December 2004, Dhaka, Bangladesh.
- *16th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, November, 2004, Boca Raton, Florida.
- *12th International Conference on Cooperative Information Systems (CoopIS 2004)*, October 2004, Lamaca, Cyprus.
- *International Conference on Database and Expert Systems Applications DEXA 2004*, September, 2004, Zaragoza, Spain.
- *15th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, November, 2003, Sacramento, California.
- *12th International Conference on Computer Communications and Networks*, October, 2003, Dallas, Texas.
- *International Conference on Database and Expert Systems Applications DEXA 2003*, September, 2003, Prague, Czech Republic.
- *International Workshop on Web Semantics - WebS 2003*, in conjunction with *International Conference on Database and Expert Systems Applications DEXA 2003*, September, 2003, Prague, Czech Republic.
- *ACM 4th International Workshop on Multimedia Data Mining (MDM/KDD2003)*, August 2003, Washington DC.
- *Fifteenth International Conference on Software Engineering and Knowledge Engineering*, July, 2003, San Francisco Bay.
- *2003 IEEE International Conference on Communications, Global Services and Infrastructure for Next Generation Networking Symposium*, May 2003, Alaska.
- *2003 IEEE International Conference on Multimedia & Expo (ICME)*, July 2003, Baltimore, Maryland.
- *International Conference on Computers and Information Technology*, December 2002, Dhaka, Bangladesh.

- *ACM Third International Workshop on Multimedia Data Mining (MDM/KDD2002)*, July 2002, Alberta, Canada.
- *International Conference on Computers and Information Technology*, December 2001, Dhaka, Bangladesh.
- *ACM Second International Workshop on Multimedia Data Mining (MDM/KDD2001)*, August 2001, San Francisco, USA.
- *International Workshop on Parallel and Distributed Multimedia Processing & Retrieval*, June 2001, Las Vegas, USA.
- *ACM 2001 Symposium on Applied Computing*, March 2001, Las Vegas, USA.
- Program Committee Member of *ACM 2001 Symposium on Applied Computing*, March, 2001, Las Vegas, USA.

Tutorial:

- Half Day Tutorial, "Matching Words and Pictures - Problems, Applications, and Progress," *14th ACM International World Wide Web Conference, WWW2005*, May 2005, Chiba, Japan.
- Half Day Tutorial, "Translating Images to Keywords: Problems, Applications, and Progress," *MIS 2003 International Workshop on Multimedia Information Systems*, September 2003, Sorrento, Italy.
- Half Day Tutorial, "Matching Words and Pictures: Problems, Applications and Progress," *ACM Fourteenth Conference on Information and Knowledge Management (CIKM)*, November 2005, Bremen, Germany.
- Half Day Tutorial, "Matching Words and Pictures - Problems, Applications, and Progress," *12th International Conference on Database Systems for Advanced Applications*, April 2007, Bangkok, Thailand.

Session Chair:

- *ACM 6th International Workshop on Multimedia Data Mining (MDM/KDD2005)*, August 2005, Chicago, Illinois.
- *Workshop on Multimedia and Web Design in IEEE Sixth International Symposium on Multimedia Software Engineering*, December 2004, Miami, Florida.
- *2nd ACM International Workshop on Multimedia Databases in Conjunction ACM CIKM 2004*, November 2004, Arlington, Virginia.
- *16th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, November 2004, Boca Raton, Florida.
- Bioinfo-9 Session (Clustering Algorithms), *3rd IEEE Symposium on Bioinformatics and BioEngineering*, March 2003, Bethesda, Maryland.
- 3rd Session (Image Retrieval), *8th International Workshop on Multimedia Information Systems*, October 2002, Tempe, Arizona.
- *International Conference on Internet Computing 2002*, June 2002, Las Vegas, Nevada.
- *International Conference on Computers and Information Technology*, December 2001, Dhaka, Bangladesh.

Panelist:

- NSF Panelist at Information & Intelligent Systems (IIS) Division in 2003, 2004, and 2005.

Reviewer:

- Invited Reviewer of Book, *Database Systems* by Elmastri and Navathe, Addison, Wesley.
- Invited Reviewer of *Encyclopedia of Computer Science and Engineering*, John Wiley & Sons.
- Invited Reviewer of *IEEE Transactions on Knowledge and Data Engineering, TKDE*.
- Invited Reviewer of *IBM Systems Journal*.
- Invited Reviewer of *ACM Transactions on Internet Technology*.
- Invited Reviewer of *IEEE Transactions on Dependable and Secure Computing*.
- Invited Reviewer of *IEEE Transactions on Systems, Man and Cybernetics - Part A*.
- External Reviewer of *ACM Transactions in Asian Language and Info Processing*.
- Invited Reviewer of *International Journal of Cooperative Information Systems (IJCIS)*.
- External Reviewer of *International Journal of Knowledge and Information Systems (KJIS)*, Springer-Verlag.
- Invited Reviewer of *Information and Software Technology*, Elsevier Publisher.
- Invited Reviewer of *World Wide Web Journal (WWWJ)*, Kluwer Academic Publishers.
- Invited Reviewer of *International Journal of Computers and Applications*, ACTA Press, Calgary, Canada.
- External Reviewer of *Research Grant* at City University of Hong Kong, Hong Kong

Research Grant

- "Information Operations Across Infospheres", Bhavani Thuraisingham(Pi), Ravi Sandhu and Latifur Khan, *Air Force Office of Scientific Research*, January, 2006 to December, 2008, \$300,006.
- "Design and Development of Semantic Web and Data Mining Technologies for Geospatial Data" Bhavani Thuraisingham(Pi) and Latifur Khan, Raytheon, 100,000\$, June, 2006 to June, 2007.
- "A Distributed Component Repository for Rapid Synthesis of Adaptive Real-Time Systems," Farokh Bastani, Latifur Khan, Edwin Sha and I-Ling Yen (Pi), *National Science Foundation*, Sept, 2001 - Aug, 2004, \$499,866.
- "Feature Extraction for Finding Images/Video", Latifur Khan(Pi), Nokia Research Center, Irving, Texas, June, 2005 to November, 2005, \$30,000.
- "Ontology-based Information Selection and Storing XML data into Databases," Latifur Khan (Pi), *SUN Academic Equipment Grant Program*, August, 2002, \$87,265.

- "Developing Advanced Middleware for Convergence of IT and Telecommunications," Farokh Bastani (PI), G. R. Datareya, Latifur Khan, and I-Ling Yen, *Alcatel USA*, January, 2004, - January, 2005, \$227,500.

Research Interests

Data Mining, Multimedia Information Management, Intrusion Detection and Worm Detection, Semantic Web and Database Systems.

Publications

Refereed Journal Publications:

Published:

1. "A Study of the Model and Algorithms for Handling Location Dependent Continuous Queries" Manish Gupta, Manghu Tu, Latifur Khan, Farokh Bastani, and I-Ling Yen
The International Journal of Knowledge and Information Systems (K&IS), Springer- Verlag, Vol. 8, No. 4, Page 414-437 (November 2005).
(Full Paper)
2. "Hierarchical Clustering for Complex Data"
Latifur Khan and Feng Luo
The International Journal on Artificial Intelligence Tools, World Scientific publishers, Vol. 14, No. 5 Page 791-810, (October 2005).
(Full Paper)
3. "A Framework for Effective Annotation of Information from Closed Captions Using Ontologies"
Latifur Khan, Dennis McLeod, and Eduard Hovy
The Journal of Intelligent Information Systems (JIIS), Kluwer Academic Publishers, Vol. 25, No. 2 Page 181-205, (September 2005).
(Full Paper)
4. "A Dynamical Growing Self-Organizing Tree (DGSOT) for Hierarchical Clustering Gene Expression Profiles"
Feng Luo, Latifur Khan, Farokh Bastani, I-Ling Yen, and J. Zhou
The Bioinformatics Journal, Oxford University Press, UK, Vol. 20, No.16, Page 2605-2617, (November 2004).
(Full Paper)
5. "Change Detection in XML Documents for Fixed Structures using Exclusive-Or (XOR)"
Latifur Khan, Qing Chen, and Lei Wang
Journal of Digital Information Management (JDIM), Digital Information Research Foundation Publishing, Vol. 2, No. 3, Page 142-147, (September 2004).
(Short Paper)
6. "Retrieval Effectiveness of Ontology-based Model for Information Selection"
Latifur Khan, Dennis McLeod, and Eduard Hovy

Vldb Journal: The International Journal on Very Large Databases, ACM/Springer-Verlag Publishing, Vol. 13, No. 1, Page 71-85, (January 2004).
(Full Paper)

7. "An Adaptive Probe-Based Technique to Optimize Join Queries in Distributed Internet Databases"
Latifur Khan, Dennis McLeod, and Cyrus Shahabi
International Journal of Database Management, Idea Group Publishing, Hershey, PA, Vol. 12, No. 4, Page 3-14, (October-December 2001).
(Full Paper)
8. "A Probe-Based Technique to Optimize Join Queries in Distributed Internet Databases"
Cyrus Shahabi, Latifur Khan, and Dennis McLeod
International Journal of Knowledge and Information Systems (K&IS), Springer-Verlag Publishing, Heidelberg, Germany, Vol. 2, No. 3, Page 372-385, (August 2000).
(Short Paper)
9. "Automatic Image Annotation and Retrieval using Weighted Feature Selection"
Lei Wang and Latifur Khan
Multimedia Tools and Applications Journal, Vol. 29, No. 1, Page 55-71, Springer (April 2006).
(Full Paper)
10. "Real-time Classification of Variable length Multi-attribute Motion Data"
Chuanjun Li, Latifur Khan, and Balakrishnan Prabhakaran
International Journal of Knowledge and Information Systems (K&IS), Vol. 10, No. 2, Page 163-183, Springer-Verlag (August 2006).
(Full Paper)
11. "Secure Knowledge Management: Confidentiality, Trust, and Privacy"
Elisa Bertino, Latifur Khan, Ravi Sandhu, and Bhavani Thuraisingham
IEEE Transactions on Systems, Man and Cybernetics, Part A, A Special Issue on Secure Knowledge Management, Vol. 36, No. 3, Page 429-438, (May 2006).
(Full Paper)
12. "A Repository for Component-Based Embedded Software Development"
Tong Gao, Hui Ma, I-Ling Yen, Latifur Khan, and Farokh Bastani
International Journal of Software Engineering & Knowledge Engineering, Vol. 16, No. 4, Page 523- 552, World Scientific Publishing Co., Singapore (August 2006).
(Full Paper)
13. "Standards for Image Annotation Using Semantic Web"
Latifur Khan
Computer Standards and Interface Journal, Vol. 29, No. 2, Page 196-204, Elsevier Publishing, North Holland, (February 2007).
(Full Paper)
14. Standards for Secure Data Sharing Across Organizations"
Douglas Harris, Latifur Khan, Raymond Paul, and Bhavani Thuraisingham
Computer Standards and Interface Journal, Vol. 29, No. 1, Page 86-96, Elsevier Publishing, North Holland (January 2007).
(Full Paper)

Accepted

15. "A New Intrusion Detection System using Support Vector Machines and Hierarchical Clustering"
Latifur Khan, Mamoun Awad, and Bhavani Thuraisingham
To appear in *The VLDB Journal: The International Journal on Very Large Databases*,
ACM/Springer-Verlag Publishing.
(Full Paper)
16. "Predicting WWW Surfing Using Multiple Evidence Combination"
Mamoun Awad, Latifur Khan, and Bhavani Thuraisingham
To appear in *The VLDB Journal: The International Journal on Very Large Databases*,
ACM/Springer-Verlag Publishing.
(Full Paper)
17. "A Framework for Automated Image Annotation"
Lei Wang, Latifur Khan, and Bhavani Thuraisingham
To appear in *International Journal of Computer Systems Science and Engineering*, CRL Publishing
LTD, United Kingdom.
(Full Paper)
18. "A Framework for a Video Analysis Tool for Suspicious Event Detection"
Gal Lavee, Bhavani Thuraisingham and Latifur Khan
To appear in a Special Issue of *Multimedia Tools and Applications Journal*, Springer.
(Full Paper)
19. "Rapid Goal-Oriented Automated Software Testing using MEA-Graph Planning"
Manish Gupta, Farokh Bastani, Latifur Khan, and Li-Ling Yen
To appear in *Software Quality Journal*, Springer.
(Full Paper)
20. "Web Navigation Prediction Using Multiple Evidence Combination and Domain Knowledge"
Mamoun Awad and Latifur Khan
To appear in *IEEE Transactions on Systems, Man, and Cybernetics, Part A*.
(Short Paper)

Others (Articles in Magazine):

21. "The 6th International Workshop on Multimedia Data Mining (MDM/KDD2005)
Fauna Bouali, Latifur Khan and Florent Massegla
SIGKDD Explorations Vol. 7, No. 2, Page 148-150, (December 2005).
22. "The 5th International Workshop on Multimedia Data Mining (MDM/KDD2004)"
Latifur Khan and Valery A. Petrushin
ACM SIGKDD Explorations, Vol. 6 No. 2, Page 144-146, (December 2004).
23. "MDM/KDD2003: Multimedia Data Mining"
Valery Petrushin, Anne Kao, and Latifur Khan
ACM SIGKDD Explorations, Vol. 6 No. 1, Page 106-108, (June 2004).

24. "Multimedia Data Mining and Knowledge Discovery"
Editors: Valery Petrushin and Latifur Khan
Springer, ISBN 1-84628-436-8, 2006.

Book Chapters:

Published

25. "A New Hierarchical Approach for Image Clustering"
Lei Wang and Latifur Khan
Multimedia Data Mining and Knowledge Discovery, Page 41-57, Editor V. Petrusin et al.,
Springer, (December 2006).
26. "Data Complexity in Clustering Analysis of Gene Microarray Expression Profiles"
Feng Luo and Latifur Khan
Complexity in Pattern Recognition, Page 217-239, Editor Mitra Basu and Tin Kam Ho, Springer
ISBN 978-1-84628-171-6 (December 2006).
27. "Classification Problems using Support Vector Machine in Data Mining"
Latifur Khan, and Mamoun Awad
In *Encyclopedia of Data Warehousing and Mining*, Editor John Wang, Information Science
Publishing, ISBN 1-59140-557-2, (April 2005).
28. "Bayesian Networks"
Ahmed Bashir, Latifur Khan, and Mamoun Awad
In *Encyclopedia of Data Warehousing and Mining*, Editor John Wang
Information Science Publishing, ISBN 1-59140-557-2, (April 2005).
29. "A Run-Time Probe Based Technique to Optimize Queries in Distributed Internet Databases"
Latifur Khan, Arun Ponnusamy, Dennis McLeod, and Cyrus Shahabi
Advanced Topics in Database Research, Editor K. Siau, Vol. 2, Idea Group Publishing, Page 128-
161, Hershey, PA (2003).
30. "Object Boundary Detection for Hierarchical Image Classification"
Latifur Khan and Lei Wang
Mining Multimedia and Complex Data ed. C. Djeraba, S. J. Simoff, and O. R. Zaiane, ISBN 3-540-
20305-2, DOI:10.1007/b12031, Chapter 6, Page 36-49, Springer-Verlag Publishing, Heidelberg,
Germany (2003).
31. "Change Detection of RDF Documents Using Signatures"
Latifur Khan, Lei Wang, and Qing Chen
Real World RDF and Semantic Web, ed. V. Kashyap and L. Siklar, Series of Frontiers of Artificial
Intelligence and Applications, IOS Press, ISBN 1-58603-306-9, Page 93-116, Amsterdam,
Netherlands (2003).
32. Privacy and Security Challenges in Geospatial Information Systems"
Bhavani Thuraisingham, Latifur Khan, Ganesh Subbiah, Ashraf Alani and Murat Kantarcioglu
To appear in *Encyclopedia of Geographical Information Science*, Editor Shashi Shekhar and Hui
Xiong Springer Verlag

Refered Conference Publications:

33. "Geospatial Data Mining for National Security Land Cover Classification and Grouping for Semantic Assessment"
Chuanjun Li, **Latifur Khay**, Bhavani Thuraisingham, Mohammad Hussain, Shaofei Chen, and Fang Qiu
To appear in *Proc. of ISI 2007 Intelligence and Security Informatics 2007*, New Jersey, May 2007.
34. "Feature based Techniques for Auto-detection of Novel Email Worms."
Mohammad Masud, **Latifur Khay**, and Bhavani Thuraisingham
To appear in *11th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2007)*, Nanjing, China, May 2007.
35. "Hybrid Model for Auto-Detection of New Malicious Executables"
Mohammad Masud, **Latifur Khay** and Bhavani Thuraisingham
To appear in *2007 IEEE International Conference on Communications (ICC 2007): Communications QoS, Reliability and Performance Modeling Symposium*, Glasgow, UK, June 2007.
36. "Vulnerability Analysis For Evaluating Quality of Protection of Security Policies",
Muhammad Abedin, Syeda Nessa, Ehab Al-Shaar and **Latifur Khay**
In *Proc. of Quality of Protection Workshop with 13th ACM Conference on Computer and Communications Security (CCS-13)* Alexandria, Virginia, USA, October, 2006.
37. "Reasoning with semantics-aware access control policies for geospatial web services"
Ashraf Alani, Ganesh Subbiah, Bhavani Thuraisingham, and **Latifur Khay**
In *Proc. of the 3rd ACM workshop on Secure web services* in conjunction with 13th ACM Conference on Computer and Communications Security (CCS-13) Alexandria, Virginia, USA, Page: 69 – 76, 2006, ISBN: 1-59593-546-0
38. "A Knowledge-based Approach to detect new Malicious Executables"
Mohammad Masud, **Latifur Khay**, and Bhavani Thuraisingham
In *Proc. of the Second Secure Knowledge Management Workshop (SKM) 2006*, Brooklyn, NY, USA, September 2006.
39. "Improving Image Annotations using Fuzzy Pruning and Association Rule Mining"
Latifur khay
In *Proc. of ACM 7th International Workshop on Multimedia Data Mining (MDM/KDD2006)* in conjunction with ACM SIGKDD 2006, Page 39-48, Philadelphia, August 2006.
40. "Detection and Resolution of Anomalies in Firewall Policy Rules"
Muhammad Abedin, Syeda Nessa, **Latifur Khay**, Bhavani Thuraisingham
In *Proc. 20th IFIP WG 11.3 Working Conference on Data and Applications Security (DBSec 2006)*, Springer-Verlag, July 2006, SAP Labs, Sophia Antipolis, France, Page 15-29.
41. "Email Worm Detection Using Naïve Bayes and Support Vector Machine"
Mohammad M. Masud, **Latifur Khay**, Ehab Al-Shaar
In *Proc. of ISI 2006 2007 Intelligence and Security Informatics*, San Diego, California, Page 733-734, (May 2006).
42. "Analysis of Firewall Policy Rule Using Data Mining Techniques"

- Korosh Golnabi, Richard Min, **Latifur Khay** and Al-Shaar Ehab
In *Proc. of 2006 IEEE/IFIP Network Operations & Management Symposium, (NOMS 2006)*, April 2006 (2006), Page 305-315, Vancouver, Canada.
43. "A Framework for Image Classification"
Manoun Awad, Yohan Jin, **Latifur Khay**, George Chen, and Fehmi Chebil
In *Proc. of IEEE 2006 Southwest Symposium on Image Analysis and Interpretation*, March 2006 (2006), Page 134-138, Denver, Colorado, USA.
44. "Image Annotations By Combining Multiple Evidence & WordNet"
Yohan Chin, **Latifur Khay**, Lei Wang, and Manoun Awad
In *Proc. of 13th Annual ACM International Conference on Multimedia (MM 2005)*, Singapore, November 2005 (2005), Page 706-715.
45. "Improving Image Annotations using WordNet"
Yohan Chin, Lei Wang, and **Latifur Khay**
In *Proc. of International Workshop on Multimedia Information Systems (MIS 2005)*, Sorrento, Italy, September 2005 (2005), Page 115-130.
46. "A Framework for a Video Analysis Tool for Suspicious Event Detection"
Gal Lavee, **Latifur Khay**, and Bhavani Thuraisingham
In *Proc. of Sixth International Workshop on Multimedia Data Mining* in conjunction with KDD 2005: The Eleventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Chicago, IL, USA, August 2005 (2005), Page 79-84.
47. "Message Correlation in Automated Communication Surveillance through Singular Value Decomposition"
Ryan Layfield, **Latifur Khay**, and Bhavani Thuraisingham
In *Proc. of Sixth International Workshop on Multimedia Data Mining* in conjunction with KDD 2005: The Eleventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Chicago, IL, USA, August 2005 (2005), Page 85-88.
48. "Dependable Real-time Data Mining"
Bhavani Thuraisingham, **Latifur Khay**, Chris Clifton, John Maurer, and Marion Certui
Invited Paper in *8th IEEE International Symposium on Object-oriented Real-time Distributed Computing*, Seattle, Washington, May, 2005 (2005), Page 158-165.
49. "A Link-based Privacy Preserving Data Mining Framework"
Li Liu, **Latifur Khay**, Bhavani Thuraisingham, and Chris Clifton
In *Proc. of 2005 South Central Information Security Symposium (SCISS '05)*, Austin, Texas, April 2005 (2005), Page 16.
50. "Link Analysis of Social Activity and Suspicious Topic Propagation"
Ryan Layfield, **Latifur Khay**, and Bhavani Thuraisingham
In *Proc. of 2005 South Central Information Security Symposium (SCISS '05)*, Austin, Texas, April 2005 (2005), Page 17.
51. "Suspicious Event Detection in Surveillance Video"
Gal Lavee, Lei Wang, **Latifur Khay**, and Bhavani Thuraisingham

- In *Proc. of 2005 South Central Information Security Symposium (SCISS '05)*, Austin, Texas, April 2005 (2005), Page 18.
52. "Automatic Image Annotation and Retrieval using Weighted Feature Selection"
Lei Wang, Li Liu, **Latifur Khan**, and Wei Wu
In *Proc. of IEEE Sixth International Symposium on Multimedia Software Engineering*, Miami, Florida, December 2004 (2004), Page 435-442.
 53. "Automatic Image Annotation and Retrieval Using Subspace Clustering Algorithm"
Lei Wang, Li Liu, and **Latifur Khan**
In *Proc. of 2nd ACM International Workshop on Multimedia Databases*, Arlington, Virginia, November 2004 (2004), Page 100-108.
 54. "An Effective Support Vector Machines (SVM) Performance using Hierarchical Clustering"
Manoun Awad, **Latifur Khan**, Farokh Bastani, and I-Ling Yen
In *Proc. of the 16th IEEE International Conference on Tools with Artificial Intelligence*, Boca Raton, Florida, November 2004 (2004), Page 663-667.
 55. "Automated Test Data Generation Using MEA-Graph Planning"
Manish Gupta, Farokh B. Bastani, **Latifur Khan**, and I-Ling Yen
In *Proc. of the 16th IEEE International Conference on Tools with Artificial Intelligence*, Boca Raton, Florida, November 2004 (2004), Page 174-182.
 56. "Real-time Classification of Multivariate Motion Data Using Support Vector Machines"
Chunjun Li, Punit R. Kulkarni, Li Lin, B. Prabhakaran, and **Latifur Khan**
In *Proc. of ACM SIGKDD 5th International Workshop on Multimedia Data Mining*, Seattle, Washington, August 2004 (2004), Page 1-7.
 57. "A Framework for Image Annotation Using Semantic Web"
Ahmed Bashir and **Latifur Khan**
In *Proc. of ACM SIGKDD First International Workshop on Mining for and from the Semantic Web (MSW 2004)*, Seattle, Washington, August 2004 (2004).
 58. "Effective Intrusion Detection Using Support Vector Machines"
Latifur Khan, Manoun Awad, and Qing Chen
In *Proc. of 2004 South Central Information Security Symposium (SCISS)*, Rice University, Houston, Texas, April 2004 (2004), Page 8.
 59. "Hybrid DNA Sequence Similarity Scheme for Training Support Vector Machines"
Manoun Awad and **Latifur Khan**
In *Proc. of the International Conference on Computer and Information Technology*, Dhaka, Bangladesh, December 2003 (2003), Page 247-251.
 60. "Automatic Software Clustering Based On a New Hierarchical Algorithm"
Lei Wang, **Latifur Khan**, and I-Ling Yen
In *Proc. of International Workshop on Multimedia Data and Document Engineering (MDDE)*, Berlin, Germany, September 2003 (2003).
 61. "A New Hierarchical Approach for Image Clustering"
Lei Wang, Mohammad Bayan, **Latifur Khan**, and Vijay Rao

- In *Proc. of ACM SIGKDD 4th International Workshop on Multimedia Data Mining*, Washington DC, August 2003 (2003), Page 72-79.
62. "Hierarchical Clustering of Gene Microarray Expression Data"
Feng Luo, Kun Tang, and **Latifur Khan**
In *Proc. of Workshop on Clustering High Dimensional Data and its Applications in Conjunction with the Third SIAM International Conference on Data Mining (SDM 2003)*, San Francisco, CA, May 2003 (2003), Page 6-17.
63. "Intrusion Detection Using Clustering Approaches"
Latifur Khan
In *Proc. of The South Central Information Security Symposium, SCISS*, University of North Texas, Denton, Texas, April 2003 (2003), Page 3.
64. "Hierarchical Clustering of Gene Expression Data"
Feng Luo, Kun Tang, and **Latifur Khan**
In *Proc. of 3rd IEEE International Symposium on Bio-informatics and Bioengineering*, Bethesda, Maryland, March 2003 (2003), Page 328-335.
65. "Ontology Construction for Information Selection"
Latifur Khan and Feng Luo
In *Proc. of 14th IEEE International Conference on Tools with Artificial Intelligence*, Washington DC, November 2002 (2002), Page 122-127.
66. "Automatic Ontology Derivation Using Clustering for Image Classification"
Latifur Khan and Lei Wang
In *Proc. of Eighth International Workshop on Multimedia Information Systems*, Tempe, Arizona, October 2002 (2002), Page 56-65.
67. "Effective Management of Location Dependent Continuous Queries in Mobile Environment"
Latifur Khan and Manish Gupta
In *Proc. of IEEE DEXA Fifth International Workshop on Mobility in Databases and Distributed Systems*, Aix-en-Provence, France, September 2002 (2002), Page 705-709.
68. "Ontology-based Image Classification Using Neural Networks"
Casey Breen, **Latifur Khan**, Arun Ponnusamy, and Lei Wang
In *Proc. of SPIE Internet Multimedia Management Systems III*, Boston, MA, July 2002 (2002), Page 198-208.
69. "Object Boundary Detection for Ontology-based Image Classification"
Lei Wang, **Latifur Khan**, and Casey Breen
In *Proc. of Third International Workshop on Multimedia Data Mining in Conjunction with Eighth ACM SIGKDD*, Edmonton, Alberta, Canada, July 2002 (2002), Page 51-61.
70. "Using Blue tooth to Facilitate Communication in a Disaster Relief Scenario"
Mohammad Mirza and **Latifur Khan**
In *Proc. of International Conference on Wireless Networks (ICWN'02)*, Las Vegas, June 2002 (2002), Page 86-96.
71. "A Component-based Approach for Embedded Software Development"

I-Ling Yen, J. Goluguri, Farokh Bastani, **Latifur Khan**, and John Linn
In Proc. of 5th IEEE International Symposium on Object-oriented Real-time Distributed Computing,
 Washington, April 2002 (2002), Page 402-412.

72. "Change Detection in XML Documents"

Latifur Khan and Yan Rao

In Proc. of the International Conference on Computer and Information Technology, Dhaka,
 Bangladesh, December 2001 (2001), Page 185-189.

73. "A Performance Evaluation of Storing XML Data in Relational DBMS"

Latifur Khan and Yan Rao

In Proc. of ACM 3rd International Workshop on WEB Information and Data Management (WIDM),
 Georgia, November 2001 (2001), Page 31-37.

74. "An On-Line Software Repository for Embedded Systems"

I-Ling Yen, **Latifur Khan**, Balakrishnan Prabhakaran, Farokh Bastani, and John Linn,

In Proc. of The Thirteenth IEEE International Conference on Tools with Artificial Intelligence,
 Dallas, TX, November 2001 (2001), Page 314-324.

75. "Ontology-based Information Selection"

Latifur Khan

Ph.D. Dissertation, Department of Computer Science, University of Southern California, August
 2000 (2000).

76. "Effective Retrieval of Audio Information from Annotated Text Using Ontologies"

Latifur Khan and Dennis McLeod

In Proc. of ACM SIGKDD Workshop on Multimedia Data Mining, Boston, MA, August 2000
 (2000), Page 37-45.

77. "Disambiguation of Annotated Text of Audio using Ontologies"

Latifur Khan and Dennis McLeod

In Proc. of ACM SIGKDD Workshop on Text Mining, Boston, MA, August 2000 (2000), Page 99-
 100.

78. "Audio Structuring and Personalized Retrieval Using Ontologies"

Latifur Khan and Dennis McLeod

In Proc. of IEEE Advances in Digital Libraries, Library of Congress, Washington, DC, May 2000
 (2000), Page 116-126.

79. "Improving the Performance of Audio-Based Similarity Queries with Clustering"

Cyrus Shahabi, Mohammad Alshayji, Ning Jiang, and **Latifur Khan**

*In Proc. of ACM First International Workshop on Multimedia Intelligent Storage and Retrieval
 Management*, Orlando, FL, November 1999 (1999).

80. "Structuring and Querying Personalized Audio Using Ontologies"

Latifur Khan

In Proc. of ACM Multimedia, Vol. 2, Orlando, FL, November 1999 (1999), Page 209-210.

81. "Selective Placement and Replication Strategies for Storing Audio Clips in a Naval Application"

Cyrus Shahabi and **Latifur Khan**

In Proc. of SPIE Multimedia Storage and Archiving Systems III, Boston, MA, November 1998
 (1998), Page 338-349.

82. "Run-Time Optimization of Join Queries for Distributed Databases over the Internet"

Cyrus Shahabi, **Latifur Khan**, Dennis McLeod, and Vishal Shah

In Proc. of Communication Networks and Distributed Systems Modeling and Simulation (CNDS),
 San Francisco, CA, January 1998 (1998).

83. "Improving the Precision of Lexicon-to-Ontology Alignment Algorithms"

Latifur Khan and Eduard Hovy

In Proc. of AMTASIG-IL First Workshop on Interlinguas, San Diego, CA, October 1997 (1997).

Advisor

Dennis McLeod.

Advisee

Ph.D.

- Mohammad Masud
- Arshad Ul Abedin
- Syeda Khairun Nessa
- Salim Ahmed
- Farhan Hussain
- Sunita Ramarajam
- John Yundt-Pacheco (Part-time)

M.S.

- Clay Woolam
- Greg Hallings

Graduated

Ph.D.

- Feng Luo (Ph.D. Summer 2004; Dissertation Title: *Mining Gene Microarray Expression Profiles*;
 Assistant Professor, Clemson University, USA since January 2006)
- Mamoun Awad (Ph.D. Fall 2005; Dissertation Title: *Effective Data Mining for Intrusion Detection
 and WWW Prediction*; Assistant Professor, University, Al-Ain, UAE since September 2006)
- Lei Wang Ph.D. Fall 2006; Dissertation Title: *Automatic Image Annotation and Mining*

M.S.

- Korosh Goinabi ("Get-Doc" Student, MS Thesis: *Updated Firewall Policy Rules using Association
 Rule Mining*)
- Ahmed Bashir (M.S. Thesis: *A Framework for Image Annotation using the Semantic Web*)
- Manish Gupta (M.S. Thesis: *A Distributed For Handling Location Dependent Continuous Queries
 in Mobile Environment*)
- Mohammad Mirza (M.S. Thesis: *Data Management in a Disaster Relief Scenario Using Bluetooth*)
- Casey Breen (M.S.)
- Rajesh Bhairampally (M.S.)

Curriculum Vitae Yang Liu

Assistant Professor
Computer Science Department
University of Texas at Dallas, TX 75080

Office phone: 972-883-6618
Email: yangl@hit.utdallas.edu
homepage: <http://www.hit.utdallas.edu/~yangl>

Research Interest

Speech recognition and understanding, spoken dialog systems, audio browsing and retrieval, natural language processing, machine learning, and data mining.

Education

2004	Ph.D. in Electrical and Computer Engineering	Purdue University
2000	M.S. in Electrical Engineering	Tsinghua University
1997	B.S. in Electrical Engineering (with honor)	Tsinghua University

Employment

09/2005-present	Assistant Professor, Computer Science Department University of Texas at Dallas, Richardson, TX
09/2006-present	Associate faculty, Electrical Engineering Department at UTD.
12/2004-08/2005	Postdoc Research Fellow, International Computer Science Institute, Berkeley, CA
07/2002-12/2004	Research Associate, International Computer Science Institute, Berkeley, CA
08/2000-12/2004	Research Assistant, Purdue University, West Lafayette, IN

Funded Activities

09/2005-12/2006	GALE: NIGHTINGALE: Novel Information Gathering and Harvesting Techniques for Intelligence in Global Autonomous Language Environments, supported by the Department of Advanced Research Program Agency (DARPA). PI at UT Dallas (subcontractor to SRI International). \$45,130.
01/15-12/31/2007	A Study on Definition of Speech Summarization in Meetings and Its Evaluation Metrics. Supported by NSF. PI. \$49,838.

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01/15-12/15/2007 NSF: REU Supplement request to NSF grant: \$12,000.
 04/15/2006-04/14/2007 Aspects of Prosody in Chinese and English. UTD-UTA Joint Research Program.
 PI. (Co-PI: Jerry Edmondson at UTA), \$10,000.
 06/2005-08/2005 JHU CLSP (Center for Language and Speech Processing) summer workshop on
 Language Engineering, supported by NSF. Participated as a team member.

Publications

Journals:

1. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, Dustin Hillard, Mari Ostendorf, Mary Harper, "Enriching Speech Recognition with Sentence Boundaries and Disfluencies", *IEEE Transactions on Speech, Audio, and Language Processing*, September, V14(5), pages 1526-1540, 2006.
2. Yang Liu, Nitesh Chawla, Mary Harper, Elizabeth Shriberg, and Andreas Stolcke, "A Study in Machine Learning from Imbalanced Data for Sentence Boundary Detection in Speech," *Computer Speech and Language*, 20(4), pp 468-494, 2006.
3. Yang Liu, Mary Harper, Michael Johnson, and Leah Jamieson, "The Effect of Pruning and Compression on Graphical Representations of the Output of a Speech Recognizer," *Computer Speech and Language*, Vol. 7, pp 329-356, October 2003.

Peer-reviewed Conferences and Workshops:

1. Feifan Liu and Yang Liu, "Look Who is Talking: Soundbite Speaker Name Recognition in Broadcast News Speech", Joint Human Language Technology Conference and Annual Meeting of North American Chapter of Association for Computational Linguistics (HLT-NAACL), 2007.
2. Yang Liu and Elizabeth Shriberg, "Comparing Evaluation Metrics for Sentence Boundary Detection", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Hawaii, 2007.
3. Yang Liu, "Using SVM and Error-correcting Codes for Multiclass Dialog Act Classification in Meeting Corpus", *Interspeech*, Pittsburgh, 2006.
4. Matthias Zimmermann, Dilek H. Tur, James Fung, Nikkī Mirghafouri, Luke Gottlieb, Elizabeth Shriberg, and Yang Liu, "The ICSI+ Multi-Lingual Sentence Segmentation System", *Interspeech*, Pittsburgh, 2006.
5. Jachym Kolar, Elizabeth Shriberg, Yang Liu, "On Speaker-Specific Prosodic Models for Automatic Dialog Act Segmentation of Multi-Party Meetings", *Interspeech*, Pittsburgh, 2006.
6. Jachym Kolar, Elizabeth Shriberg, Yang Liu, "Using Prosody for Automatic Sentence Segmentation of Multi-Party Meetings", *International Conference on Text, Speech, and Dialogue (TSD)*, Czech, 2006.
7. John Hale, Izhak Shafan, Lisa Yung, Bonnie Dorr, Mary Harper, Anna Krasnyanskaya, Matthew Lease, Yang Liu, Brian Roark, Matthew Snober, and Robin Stewart, "PCFGs with Syntactic and

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Prosodic Indicators of Speech Repairs", *Annual Meeting of the Association for Computational Linguistics (ACL)*, Sidney, 2006.

8. Yang Liu, "Initial Study on Speaker Role Detection in Broadcast News Speech", *Joint Human Language Technology Conference and Annual Meeting of North American Annual meeting on Computational Linguistics (HLT/NAACL)*, New York, 2006.
9. Robin Stewart, Andrea Danyluk, Yang Liu, "Off Topic Detection in Conversational Speech", *Workshops on Analyzing Conversations in Text and Speech, at HLT/NAACL*, New York, 2006.
10. Brian Roark, Yang Liu, Mary Harper, Robin Stewart, Matthew Lease, Matthew Snober, Izhak Shafan, Bonnie Dorr, John Hale, Anna Krasnyanskaya, and Lisa Yung, "Reranking for Sentence Boundary Detection in Conversational Speech", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, France, 2006.
11. Brian Roark, Mary Harper, Eugene Charniak, Bonnie Dorr, Mark Johnson, Jeremy Kahn, Yang Liu, Mari Ostendorf, John Hale, Anna Krasnyanskaya, Matt Lease, Izhak Shafan, Matt Snober, Robin Stewart, and Lisa Yung, "SParseval: Evaluation Metrics for Parsing Speech", *International Conference on Language Resources and Evaluation (LREC)*, Italy, 2006.
12. Ann Bies, Stephanie Strassel, Haejoong Lee, Kazuaki Maeda, Seth Kulick, Yang Liu, Mary Harper, and Matthew Lease, "Linguistic Resources for Speech Parsing", *International Conference on Language Resources and Evaluation (LREC)*, Italy, 2006.
13. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, and Mary Harper, "Comparing HMM, Maximum Entropy, and Conditional Random Fields for Disfluency Detection", *Interspeech*, Lisboa, 2005.
14. Anand Venkataraman, Yang Liu, Elizabeth Shriberg, and Andreas Stolcke, "Does Active Learning Help Automatic Dialog Act Tagging in Meeting Data?", *Interspeech*, Lisboa, 2005.
15. Matthias Zimmermann, Yang Liu, Elizabeth Shriberg, and Andreas Stolcke, "A* Based Segmentation and Classification of Dialog Acts in Multiparty Meetings", *IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)*, Puerto Rico, 2005.
16. Yang Liu, Andreas Stolcke, Mary Harper, and Elizabeth Shriberg, "Using Conditional Random Fields for Sentence Boundary Detection in Speech", *43rd Annual Meeting of the Association for Computational Linguistics (ACL)*, Ann Arbor, Michigan, 2005.
17. Matthias Zimmermann, Yang Liu, Elizabeth Shriberg, and Andreas Stolcke, "Toward Joint Segmentation and Classification of Dialog Acts in Multiparty Meetings", *2nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms (MLMI)*, Edinburgh, UK, 2005.
18. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, Barbara Peskin, Jeremy Ang, Dustin Hillard, Mari Ostendorf, Marcus Tomalin, Phil Woodland, and Mary Harper, "Structural Metadata Research in the EARS Program," invited paper, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Philadelphia, Pennsylvania, 2005.
19. Jeremy Ang, Yang Liu, and Elizabeth Shriberg, "Automatic Dialog Act Segmentation and Classification in Multiparty Meetings", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Philadelphia, Pennsylvania, 2005.
20. Yang Liu, Andreas Stolcke, Mary Harper, and Elizabeth Shriberg, "Comparing and Combining Generative and Posterior Probability Models: Some Advances in Sentence Boundary Detection in Speech," *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Canada, 2004.

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21. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, Dustin Hillard, Mari Ostendorf, Barbara Peskin, and Mary Harper, "The ICSI-SRI-UW Metadata Extraction System," *Interspeech/ICSLP*, Korea, 2004.
22. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, and Mary Harper, "Using Machine Learning to Cope with Imbalanced Classes in Natural Speech: Evidence from Sentence Boundary and Disfluency Detection," *Interspeech/ICSLP*, Korea, 2004.
23. Lei Chen, Yang Liu, Mary Harper, and Elizabeth Shriberg, "Multimodal Model Integration for Sentence Unit Detection," *International Conference on Multimodal Interfaces (ICMI)*, Pennsylvania, 2004.
24. Lei Chen, Yang Liu, Eduardo Maia, and Mary Harper, "Evaluating Factors Impacting the Accuracy of Forced Alignments in a Multimodal Corpus," *International Conference on Language Resources and Evaluation (LREC)*, Portugal, 2004.
25. Dustin Hillard, Mari Ostendorf, Andreas Stolcke, Yang Liu, and Elizabeth Shriberg, "Improving Automatic Sentence Boundary Detection with Confusion Networks," *Human Language Technology conference / Annual Meeting of North American Chapter of the Association for Computational Linguistics Annual meeting (HLT/NAACL)*, Boston, Massachusetts, 2004.
26. Yang Liu, Elizabeth Shriberg, and Andreas Stolcke, "Automatic Disfluency Identification in Conversational Speech Using Multiple Knowledge Sources," *Interspeech/EuroSpeech*, Switzerland, 2003.
27. Yang Liu, "Word Fragment Identification Using Acoustic-Prosodic Features in Conversational Speech," Student Workshop in *Human Language Technology conference / North American Chapter of the Association for Computational Linguistics Annual meeting (HLT/NAACL)*, Canada, 2003.
28. Wen Wang, Yang Liu, and Mary Harper, "Rescoring Effectiveness of Language Models Using Different Levels of Knowledge and Their Integration," *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Orlando, Florida, 2002.
29. Yang Liu, Jiasong Sun, and Zuoying Wang, "Comparisons of Smoothing Methods in Chinese Language Model," *International Symposium on Chinese Spoken Language Processing (ISCSLP)*, China, 2000.
30. Jiasong Sun, Xiaodong Cui, Zuoying Wang, and Yang Liu, "A Language Model Adaptation Approach Based on Text Classification," *International Conference on Spoken Language Processing (ICSLP)*, China, 2000.

Invited Talks:

1. "Prosody in Speech Processing", Joint meeting of Acoustic Society of America and Acoustic Society of Japan (ASA/ASJ), November, 2006, Hawaii.
2. "Speech and Language Processing: Perspective and Practice in Engineering and Computer Science", University of Texas at Arlington, April, 2006.
3. "Structural Event Detection in Speech", Brown University, April, 2005.

Others (reports, presentations):

CV

Liu, Page 4

1. Feifan Liu and Yang Liu, "Soundbite Speaker Name Recognition in Mandarin Broadcast News", DARPA GALE Workshop, March, 2007.
2. Feifan Liu and Yang Liu, "Unsupervised Language Model Adaptation Incorporating Named Entity Information", DARPA GALE Workshop, March, 2007.
3. Matthew Magimai Doss, Sebastien Cuendet, James Fung, Dilke Tur, Elizabeth Shriberg, and Yang Liu, "Recent Progress on the ICSI+ Sentence Segmentation System", DARPA GALE Workshop, March, 2007.
4. Yang Liu and Elizabeth Shriberg, "More Than Words Can Say: Using Prosody to Find Sentence Boundaries in Speech", Lay paper in the 4th Joint Meeting of Acoustic Society of America and Acoustic Society of Japan (ASA/ASJ), Hawaii, 2006.
5. Mary Harper, Bonnie Dorr, Brian Rourke, John Hale, Zak Shafraim, Yang Liu, Matt Lease, Matt Snover, Lisa Young, Robin Stewart, Anna Krasnyanskaya, "Parsing Speech and Structural Event Detection", 2005 JHU CSLP Language Engineering Summer workshop final report. <http://www.cslp.jhu.edu/ws2005/groups/eventdetect/documents/finalreport.pdf>
6. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, Barbara Peskin, and Mary Harper, "The ICSI/SRI/UW RT04 Structural Metadata Extraction System," *EAARS RT-04 Workshop*, New York, November 2004.
7. Yang Liu, Elizabeth Shriberg, Andreas Stolcke, Barbara Peskin, Jeremy Aug, and Mary Harper, "ICSI-SRI-UW Structural MDE: Modeling, Analysis, and Issues," *EAARS RT-04 Workshop presentation*, New York, November 2004.
8. Yang Liu, Elizabeth Shriberg, Dustin Hillard et al., "ICSI/SRI/UW RT03F MDE System and Research," *EAARS RT-03F Workshop presentation*, Washington D.C., November 2003.
9. Elizabeth Shriberg, Yang Liu, Mari Ostendorf et al., "Metadata Extraction Research at SRI/CSI/UW," *EAARS RT-03S Workshop presentation*, Boston, May 2003.

Selected Honors

- | | |
|------|---|
| 2005 | Selected for the 2005 DARPA Cognitive System Conference: "Young Investigators Initiative" |
|------|---|

Professional Activities

- NSF IIS Panelist, 2005/09
- Publication committee, NAACL-HLT 2007 (Joint Human Language Technology Conference and Annual Meeting of North American Chapter of the Association for Computational Linguistics).
- Area Chair, MLMI 2007 (4th Joint Workshop on Multimodal Interactions and Related Machine Learning Algorithms).

CV

Liu, Page 5

- Technical Committee, ISCSLP 2006 (International Symposium on Chinese Spoken Language Processing).
- Reviewer:
 - Journal: IEEE Transactions on Audio, Speech, and Language Processing
 - Journal: Speech Communication
 - Journal: Language and Speech
 - International conference: HLT/EMNLP 2005 (Human Language Technology, Empirical Methods in Natural Language Processing)
 - International conference: ASRU 2005 (IEEE workshop on Automatic Speech Recognition and Understanding)
 - International conference: ICASSP 2006, 2007 (IEEE International conference on Acoustics, Speech, and Signal Processing)
 - IEEE/ACL workshop on Spoken Language Technology, 2006
 - HLT/NAACL 2007 (Joint Human Language Technology Conference and Annual Meeting of North American Chapter of the Association for Computational Linguistics).
- Member of:
 - the Institute of Electrical and Electronics Engineers (IEEE)
 - the Association for Computing Machinery (ACM)
 - the Association for Computational Linguistics
 - International Speech Communication Association (ISCA)
 - Women in Engineering

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Liu, Page 6

Ying Liu

Ying Liu
Department of Computer Science
2601 N. Floyd Rd. MS EC31
University of Texas at Dallas
Richardson, TX 75083

E-mail: Ying.liu@utdallas.edu
Home page: <http://www.utdallas.edu/~ying.liu>
Phone (972) 883-6621
Fax (972) 883-2349

EMPLOYMENT

2005-Present. Tenure-track Assistant Professor
Department of Computer Science, University of Texas at Dallas

EDUCATION

Ph.D. in Computer Science, 2005
Georgia Institute of Technology, Atlanta, Georgia

M.S. in Computer Science, 2001

M.S. in Bioinformatics, 2001

Georgia Institute of Technology, Atlanta, Georgia

M.S. in Biology, 1998

Nanjing University, Nanjing, Jiangsu, China

B.S. in Biology, 1995

Nanjing University, Nanjing, Jiangsu, China

PUBLICATIONS

Peer-Reviewed Journal Publications

1. Wenyuan Li, Wee-Keong Ng, Ying Liu and Kok-Leong Ong. Enhancing the Effectiveness of Clustering with Spectra Analysis. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*. To Appear, 2007.
2. Xiuwen Zheng, Hung-Chung Huang, Wenyuan Li, Peng Liu, Quan-Zhen Li, and Ying Liu. Modeling Nonlinearity in Dilution Design Microarray Data. *Bioinformatics*, To Appear 2007.
3. Wenyuan Li, Yanxiong Peng, Hung-Chung Huang and Ying Liu. Biomarker Discovery And Visualization In Gene Expression Data With Efficient Generalized Matrix Approximations. *Journal of Bioinformatics and Computational Biology (JBCB)*, To Appear, 2007.
4. Wenyuan Li, Yongling Lin, and Ying Liu. The Structure of Weighted Small-World Network. *Physica A: Statistical Mechanics and its Applications*, 378:708-718, 2007.
5. Yanxiong Peng, Wenyuan Li and Ying Liu. A Hybrid Approach for Biomarker Discovery from Microarray Gene Expression Data. *Cancer Informatics*, 2: 301-311, 2006.
6. MAQC Consortium. The MicroArray Quality Control (MAQC)

project shows inter- and intraplatform reproducibility of gene expression measurements. *Nature Biotechnology*, 24 (9): 1151-1161, 2006.

7. Wenyuan Li, Ying Liu, H.-C. Huang, Yanxiong Peng, Yongling Lin, Wee-Keong Ng, and Kok-Leong Ong. Dynamical Systems for Discovering Protein Complexes and Functional Modules from Biological Networks. To appear in *IEEE/ACM Transactions on Computational Biology and Bioinformatics*.
8. Ying Liu, Shankant B. Navathe, Alex Pivoshenko, Venu Dasigi, Ray Dingleline, and Brian J. Ciliac. (2006) *Text Analysis of MEDLINE for Discovering Functional Relationships among Genes: Evaluation of Keyword Extraction Weighting Schemes*. International Journal of Data Mining and Bioinformatics, 1:88-110.
9. Ying Liu. (2006) *Serum Proteomic Pattern Analysis for Early Cancer Detection*. Technology in Cancer Research and Treatment 5(1): 1-6.
10. Ying Liu, Shankant B. Navathe, Alex Pivoshenko, Jorge Civera, Venu Dasigi, Ashwin Ram, Brian J. Ciliac, and Ray Dingleline. (2005) "Text Mining Biomedical Literature for Discovering Gene-to-Gene Relationships: A Comparative Study of Algorithms". *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 2:62-76.
11. Ying Liu. (2004) "A Comparative Study of Feature Selection Methods for Drug Discovery". *Journal of Chemical Information and Computer Sciences* 44(5): 1823-1828.
12. Ying Liu. (2004) "Active learning with support vector machine applied to gene expression data analysis for cancer classification." *Journal of Chemical Information and Computer Sciences*. 44:1936-1941
13. F.X. Kong, Ying Liu et al. (2000) "Biochemical responses of the mycorrhizae in *Pinus massoniana* to combined effects of Al, Ca, and low pH." *Chemosphere* 40: 311-318
14. Ying Liu, Zhang Min. (1999) "Study of Strontium and Boron as Antidotes to Fluoride Toxicity." *Toxicological and Environmental Chemistry* 70:1-7.
15. F.X. Kong, C.L. Zhou, Ying Liu (1998) "Biochemical and cytological responses of ectomycorrhizae in *Pinus massoniana* to artificial acid rain." *Chemosphere* 37: 179-187
16. F.X. Kong, W. Hu, Ying Liu (1998) "Molecular structure and biochemical toxicity of four halogeno-benzenes on the unicellular green alga *Selenastrum capricornutum*." *Environmental and Experimental Botany*. 40: 105-111
17. F.X. Kong, Ying Liu, F.-D. Cheng (1997) *Aluminum toxicity and nutrient utilization in the mycorrhizal fungus Hebeloma*

mesophacus. *Bull. Environ. Contam. Toxicol.* 59: 125-131.

18. M. Qiu, Z. Jia, C. Xue, Z. Shao, Y. Lin and E. H.-M. Sha. Loop Scheduling to Minimize Cost with Data Mining and Prefetching for Heterogeneous DSP, in *IASTED Parallel and Distributed Computing and Systems (PDCS)*, pp. 572-577, Dallas, November 13 - 15, 2006
19. Wenyuan Li, Yanxiong Peng, H.-C. Huang, and Ying Liu. (2006) *Efficient Generalized Matrix Approximations for Biomarker Discovery and Visualization in Gene Expression Data. Computational Systems Biology Conference (CSB 2006)*, Stanford University, CA August 2006, p133-144.
20. Guanglei Song, Yu Qian, Ying Liu, Kang Zhang. (2006) *Oasis: a Mapping and Integration Framework for Biomedical Ontologies*. 19th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2006), p611-616
21. Ying Liu. (2005) *Drug Design by Machine Learning: Ensemble Learning for QSAR Modeling*. Proceeding of The Fourth International Conference on Machine Learning and Applications (ICMLA'05), Los Angeles CA, December 15-17, 2005, p187-193
22. N. Polavarapu, S. B. Navathe, R. Ramnarayanan, A. Haque, S. Sahay, Ying Liu. (2005) *Investigation into Biomedical Literature Classification using Support Vector Machines*. Proceedings of 2005 IEEE Computational Systems Bioinformatics Conference (CSB2005), Stanford University, August 8-11, 2005.
23. Ying Liu, Brian J. Ciliac, Karin Borges, Venu Dasigi, Ashwin Ram, Shankant B. Navathe, and Ray Dingleline. "Comparison of Two Schemes for Automatic Keyword Extraction from MEDLINE for Functional Gene Clustering." Proceedings of 2004 IEEE Computational Systems Bioinformatics Conference (CSB2004), Stanford University, August 16-19, 2004, pp394-404
24. Ying Liu, Martin Brandon, Shankant Navathe, Ray Dingleline, and Brian J. Ciliac. "Automatic Keyword Extraction from MEDLINE for Functional Gene Clustering". 11th MEDInfo 2004 (American Medical Informatics Association Official Annual Conference), San Francisco, September 7-11, 2004, pp292-296.
25. Ying Liu et al. (2004) Evaluation of a New Algorithm for Keyword-Based Functional Clustering of Genes. *RECOMB March 26-31, 2004 San Diego, CA*.
26. R.J. Dingleline, Ying Liu, B.J. Ciliac, J. Civera, A. Ram, S.B. Navathe. Evaluating MEDLINE Text-Mining Strategies for

Interpreting DNA Microarray Expression Profiles. Program No. 2501. 2002 *Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2002

27. B.J. Ciliax, M. Brandon, Ying Liu, S.B. Navathe, R. Dingleline. Data Mining Keywords Associated with Genes Identified by Expression Profiling with DNA Microarrays. Program No. 249, 2001 *Abstract Viewer/Itinerary Planner*. Washington, DC: Society for Neuroscience, 2001

Book Chapters

28. Assisted with the Chapter 29 (Emerging Database Technologies and Applications) of *Fundamentals of Database Systems*, Elmasri and Navathe, 4th edition, Addison-Wesley, 2003

AWARDS

- 2006 Achievement Award, Association of Machine Learning and Application
- 2005 Achievement Award, Association of Machine Learning and Application
- 2004 merit-based RECOMB Travel Fellowship
- 1995 Best Bachelor Thesis, Nanjing University – Awarded to the top student in the graduating class with the exceptional thesis.
- 1995 Guanhua Scholarship, Nanjing, China – Awarded to top 5% students with outstanding academic achievement.
- 1994 People Scholarship, Nanjing, China – Awarded to top 10% students with exceptional academic achievement.
- 1993 People Scholarship, Nanjing, China

INVITED TALKS

- 03/15/2004. Text mining and its application to Medical Research. Public Health Informatics Program Seminar Series, Center of Disease Control and Prevention (CDC).
- 04/17/2004. Lecture: Data mining and text mining. Course (CS 6400 Database System and Design)
- 11/29/2004. GeneTrak, a text mining system for functional gene clustering. School of Computer Science, University of Central Florida, Orlando, Florida
- 12/08/2004. Bioinformatics tool development for microarray and proteomic data analysis. Southern Polytechnic and State University, Marietta, GA
- 01/11/2005. Text mining biomedical literature for microarray data analysis. Department of Electrical Engineering and Computer Science, University of Kansas, Lawrence, Kansas.

RESEARCH

University of Texas at Dallas Dallas, Texas
August 2005-present (Principle Investigator)
 Microarray Quality Control Project
 Design new statistical and computational algorithms for cross-

platform microarray data analysis.

System biology project

Design and develop new computational algorithms for large-scale protein-protein interaction network and pathway analysis and building

Georgia Institute of Technology Atlanta, Georgia

January 2000 – August 2005

Research Assistant in the College of Computing

Text Mining Project

(A Cooperative project between Georgia Tech and Emory

University School of Medicine)

- Designed and implemented GeneTrek system, a text mining system to cluster genes by keyword association from biomedical literature
- Designed and implemented keyword weighting algorithm to extract functional keywords for genes
- Designed and implemented BEA-PARTITION cluster algorithm for data mining and text mining biomedical literature to discover novel gene-to-gene, gene-to-disease relationships

Ovarian Cancer Project

(A Cooperative project, between College of Computing, Georgia Tech, School of Biology, Georgia Tech, Ovarian Cancer Institute, and the Georgia Cancer Coalition.)

- Designed ovarian cancer database, a database to incorporate patient history data, microarray data, and proteomic data.
- Mined the ovarian cancer database to discover the novel relationship between gene expression pattern and patient history.
- Adapted and implemented support vector machine active learning for gene expression data analysis for cancer classification.
- Adapted and implemented support vector machines and MIT feature selection method for proteomic data analysis for early cancer detection.

Drug Discovery Project

- Applied different feature selection methods for molecular representation of the chemicals for computer-aid drug discovery
- Implemented different machine learning algorithms for QSAR modeling for automated drug discovery.

Gene Prediction Project

- Designed and implemented hidden Markov model to predict Maze genes
- Adapted and implemented support vector machine active learning

for splice site prediction for gene finding.

Center of Disease Control and Prevention (CDC) Atlanta, GA

March 2003 – present
Graduate Research Assistant

Text Mining Project

- Designed HuGE (Human Genome Epidemiology) literature database.
- Implemented support vector machines to classify biomedical literature into HuGE literature and non-HuGE literature.
- Developed text mining tools for human genome literature analysis to assist disease research, such as cancer, cardiovascular disease.

General Electric Global Research Center, Niskayuna, NY

May – August 2002

Research intern in Advanced Computer Technology Group

- Designed and implemented algorithms to build cardiovascular pathway.
- Mined various databases (i.e., GeneBank, BLAST, and Pfam) to extract such information as consensus sequences, protein domain.

Nanjing University

Nanjing, China

July 1994 – July 1995

Undergraduate Research Assistant in Department Biology
Toxicological Effect of Environmental Pollutant Project

- Designed and implemented linear regression QSAR model to predict the toxicity of organic pollutants to the ecological system.

PATENT

System and method for clustering objects from text documents and for identifying functional descriptors for each cluster. Filed in February, 2004

TEACHING

University of Texas at Dallas

Dallas, Texas

Spring 2006- Present

Teaching Bioinformatics, Database

Georgia Institute of Technology

Atlanta, Georgia

Spring 2002 – present (6 semesters)

Teaching Assistant for Introduction to Databases

Designed the class projects, and worked one-on-one with students

Georgia Institute of Technology

Atlanta, Georgia

Fall 1998 – Spring 2001 (8 semesters)

Teaching Assistant for Introduction to Biology Lab

Delivered 30-minute lecture before each lab, directed the students with the experiments, and worked one-on-one with students

Nanjing University

Nanjing, China

Spring 1995 (1 semester)

Undergraduate Teaching Assistant for Genetic Toxicology

Delivered several lectures, prepared exams and lab.

PROFESSIONAL SERVICES

- Program co-chair, Applications of Machine Learning in Medicine and Biology, The Fifth International Conference on Machine Learning and Applications (ICMLA'07), Cincinnati, Ohio, December 13-15 2007.
- Program Committee member, 5th European Conference on Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics (EvoBIO 2007), 11-13 April 2007, Valencia, Spain
- Program Committee member, International Workshop on Data Mining in Bioinformatics with Sixth 2006 IEEE International Conference on Data Mining (ICDM'06), Hong Kong, December 18-22, 2006
- Co-Chair, Applications of Machine Learning in Medicine and Biology, The Fourth International Conference on Machine Learning and Applications (ICMLA'06), Orlando FL, December 14-16, 2006
- Program Committee Member, The IASTED International Conference on Computational and Systems Biology (CASB 2006), Dallas TX, November 13-15, 2006
- Program Committee Member, IEEE International Conference on Granular Computing (IEEE GrC 2006), Atlanta, GA, May 10-12, 2006
- Program Committee Member, International Conference on Data Engineering (ICDE 2006) PhD Workshop, Atlanta, GA, April 3-7, 2006
- Session chair, Applications of Machine Learning in Medicine and Biology, The Fourth International Conference on Machine Learning and Applications (ICMLA'05), Los Angeles CA, December 15-17, 2005
- College of Computing Graduate Tea organizer, Fall, 2004
- Reviewed for IEEE Transaction on Neural Network, 2004
- Computational System Bioinformatics Conference (CSB 2004), 11th International Conference on Management of Data (COMAD 2005).

Curriculum Vitae

Rym Mili
School of Engineering and Computer Science
University of Texas at Dallas
Box 830688, Richardson, TX 75083-0688 USA
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(972) 883 2091

February 28, 2007

Professional Interests

Software Engineering
Multi-Agent Systems
Information Visualization

Education

- Ph.D. in Computer Science, Department of Computer Science, University of Ottawa, Canada. Thesis: *Measuring the Reuse Worthiness of a Component: Empirical and Analytical Approaches*. Fall 1996.
- Doctorat de Spécialité in Computer Science (equivalent to a Ph.D.), Department of Computer Science, University of Tunis, Tunisia. Thesis: *A Relational Method for Specification Validation and Its Automated Support*. Spring 1991. Honors: *Très Honorable*.
- Engineering Degree in Computer Science Department of Computer Science, University of Tunis, Tunisia. Thesis: *A Specification Model for Data Types*. June 1989.
- Pre-Engineering in Mathematics, Physics and Chemistry. Faculty of Sciences, University of Tunis, Tunisia. June 1985.
- Baccalauréat in Mathematics and Physics, Académie de Paris, France, June 1983.

Professional Experience

- September 2002 to present: Associate Professor, School of Engineering and Computer Science, University of Texas at Dallas, USA.
- September 1995 to August 2002: Assistant Professor, School of Engineering and Computer Science, University of Texas at Dallas, USA.

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- Summer 1992 to Fall 1994: Lecturer, Department of Computer Science, University of Ottawa, Canada. Courses taught: *Software Engineering*, *Cleanroom Software Engineering*, *Introductory Programming*.
- Winter 1993 to Spring 1995: Lecturer at the Institute for Government Informatics Professionals, in Ottawa, Canada. This is an initiative of the federal government to teach software engineering to computer science professionals. Courses taught and/or developed: *Software Engineering*, *Software Maintenance and Re-engineering*, *Data Structures*.

Professional Recognition

- Teaching Excellence Award, Academic year 2000-2001. This award is presented annually to one outstanding teacher in the department of Computer Science, University of Texas at Dallas. It acknowledges the central role teaching and mentoring play in the mission of the school of Engineering and Computer Science.

Teaching

Courses taught:

Recent Advances in Computing: Multi-Agent Systems (graduate)
Software Engineering (graduate and undergraduate),
Requirements Engineering (undergraduate),
Object Oriented Analysis and Design (graduate),
Project Planning and Management (graduate),
Software Maintenance and Re-engineering (graduate),
Software Reuse (graduate),
Data Structures (graduate).

Publications

Research Journals and Book Chapters

- R. Mili, E. Oladimeji and R. Steiner, DIVAs: Illustrating an Abstract Architecture for Agent-Environment Simulation Systems, *Journal of Multi Agent and Grid Systems*, Special issue on Agent-Oriented Software Development Methodology, no. 4, vol 2, 2006.
- R. Steiner, G. Leask, R. Mili, An Architecture for MAS Simulation Environments Environments for Multi-Agent Systems, *Lecture Notes in Computer Science*, vol. 3830, Springer Verlag, 2005.
- R. Castello and R. Mili, Visualizing Graphical and Textual Formalisms, *Information Systems*, vol. 28, pp. 753-768, Elsevier, 2003.
- R. Castello, R. Mili and I. G. Tollis, Visualizing Statecharts with ViSta, book chapter, *Graph Drawing Software: Mathematics and Visualization*, P. Mutzel and M. Jünger (eds.), pp. 299-319, Springer Verlag, 2003.
- R. Castello, R. Mili and I. G. Tollis, A Framework for the Static and Interactive Visualization of Statecharts, *Journal of Graph Algorithms and Applications*, vol. 6, no. 3, pp. 313-351, 2002.

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- R. Mili and R. Steiner, *Software Visualization in Software Engineering, State-of-the-Art Survey, Lecture Notes in Computer Science*, vol. 2289, Stephan Diehl (ed.), Springer Verlag, 2002.
 - R. Castello, R. Mili and I. G. Tollis, *ViSta: A Tool Suite for the Visualization of Behavioral Requirements, Journal of Systems and Software*, Elsevier, vol. 62, pp.141-159, 2002.
 - R. Castello, R. Mili and I. G. Tollis, *Automatic Layout of Statecharts, Software Practice and Experience*, vol. 32, pp. 25-55, John Wiley, 2002.
 - R. Mili, J. Desharnais, M. Frappier and A. Mili, *Semantic Distance Between Relational Specifications, Theoretical Computer Science*, 247(1-2), pp. 257-276, North-Holland, 2000.
 - R. Mili and J. Raymond, *Towards a Formal Framework for Software Reuse, Information Sciences*, 110(1998), pp. 135-149, Elsevier Science Inc., 1998.
 - A. Mili, R. Mili and R. Mittermeir, *A Survey of Software Storage and Retrieval, Annals of Software Engineering*, 5(1998), pp. 349-414, Baltzer Science Publishers, 1998.
 - R. Mili, A. Mili and R. Mittermeir, *Storing and Retrieving Software Components: A Refinement Based System, IEEE Transactions on Software Engineering*, 23(7), pp. 445-460, 1997.
 - J. Desharnais, A. Mili, R. Mili, J. Mullins and Y. Slimani, *Semantics of Concurrency*, Book chapter, in *Handbook of Parallel Programming*, A. Zomaya, editor, New York, NY: McGraw Hill, 1995.
 - N. Boudriga, A. Mili, F. Mili and R. Mili, *A Relational Approach to the Specification of Data Types: The Generalized Model, Computer Languages (Pergamon Press)*, vol. 17, No 2, pp. 101-131, 1992.
 - N. Boudriga, A. Mili and R. Mili, *DIDON: A System for Executable Specifications, Information and Software Technology (Butterworth Heinemann Ltd)*, vol. 33, No 7, pp. 489-498, 1991.
- Refereed Conference and Workshop Proceedings**
- R. Z. Mili, E. Oladimeji, R. Steiner, *Architecture of the DIVAs Simulation System, Agent Directed Simulation Symposium ADS'06*, Society for Modeling and Simulation, Huntsville, Alabama, April 2-6 2006.
 - R. Steiner, G. Leask, R. Mili, *An Architecture for MAS Simulation Environments, Environments for Multi-Agent Systems (E4MAS'05), ACM Conference on Autonomous Agents and Multi Agent Systems*, Utrecht, The Netherlands, July 15-29, 2005.
 - R. Mili, G. Leask, U. Shakya, R. Steiner, *Architectural Design of the DIVAS environment, Environments for Multi-Agent Systems (E4MAS'04), ACM Conference on Autonomous Agents and Multi Agent Systems*, Columbia University, NY, July 19-23, 2004.
 - R. Castello, R. Mili and I. G. Tollis, *Visualizing Statecharts: The ViSta tool*, in *Proceedings Graph Drawing 2001*, Vienna, Austria, September 23-26, 2001. Also in *Lecture Notes in Computer Science*, vol. 2265, Springer Verlag, 2002.

- R. Castello, R. Mili and H. Madabushi, *Visualizing Textual and Graphical Formalisms, in Proceedings IEEE Symposia on Human-Centric Computing Languages and Environments, HCC'01*, September 5-7, 2001, Stresa, Italy.
- R. Castello, R. Mili and I. G. Tollis, *An Algorithmic Framework for Visualizing Statecharts, in Proceedings Graph Drawing 2000*, VA, September 2000. Also in *Lecture Notes in Computer Science*, vol. 1984, pp. 139-149, Springer Verlag, 2001.
- R. Castello, R. Mili, I. G. Tollis and V. Benson, *On the Automatic Visualization of Statecharts: The ViSta tool*, in *Proceedings 4th International Workshop on Tools for System Design and Verification, (FM-Tools 2000)*, Ulm, Germany, July 2000, pp. 179-186.
- J. Raymond, J. Shah and R. Mili, *Automated Reusability Evaluation System*, in *Proceedings, 2nd European Software Measurement Conference (FESMA'99)*, Amsterdam, The Netherlands, October 1999.
- R. Mittermeir, H. Pozewaunig, A. Mili and R. Mili, *Uncertainty Aspects in Component Retrieval*, in *Proceedings, 7th Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU'98)*, Paris, France, July 1998.
- M. Frappier, L. Labed, J. Desharnais, A. Mili and R. Mili, *Retrieving Software Components That Minimize Adaptation Effort*, in *Proceedings, IEEE Conference on Automated Software Engineering*, Nevada, November 1997.
- R. Mili, M. Frappier, J. Desharnais and A. Mili, *A Calculus of Program Modifications*, in *Proceedings, ACM Symposium on Software Reuse*, Boston, Ma, May 1997. Also in *Software Engineering Notes*, ACM Press. vol. 22, No 3, May 1997.
- L. Labed Jilani, R. Mili and A. Mili, *Using Functional Distance to Perform Approximate Retrieval*, in *Proceedings, Eighth International Workshop on Software Reuse*, Columbus, OH, March 1997.
- R. Mili and J. Raymond, *Measuring the Reusability of a Component: A Return On Investment Approach*, in *Proceedings International Conference on Software Quality*, Ottawa, Canada, October 28-29, 1996.
- L. Ben Arfa, R. Mili, M. Frappier and A. Mili, *Verification Based Inspection of Object Oriented Software: A Relational Approach*, in *Proceedings Third Annual International Conference on Cleanroom Software Engineering Practices*, College Park, MD, October 10-11, 1996.
- R. Mili and J. Raymond, *Assessing Reusability: An Economics Based Measure*, in *Proceedings, Reuse'95*, Morgantown, WV, August 1995.
- R. Mili and R. Mittermeir, *Ex-Ante Reusability Assessment*, in *Proceedings, Fourth International Conference on Re-Technologies for Information Systems*, Bled, Slovenia, June 19-20th, 1995.
- R. Mili and A. Mili, *La Méthodologie Cleanroom pour le Développement de Logiciels sans Fautes*, in *Proceedings Forum Informatique'95*, Tunis, Tunisia, March 1995.

- A. Mili, R. Mili and R. Mittermeir, Storing and Retrieving Software Components: A Refinement Based System, in *Proceedings, Sixteenth IEEE International Conference on Software Engineering*, Sorento, Italy, May 1994.
 - R. Mili, A. Mili and S. Talbert, Modeling Software Engineering Knowledge: Applications to Curriculum Development, in *Proceedings, Workshop on Software Engineering Education*, Sorento, Italy, May 1994.
 - R. Mili and A. Mili, Teaching a First Course on Data Structures: A Software Engineering Approach, in *Proceedings, ACM SIGCSE 94 Technical Symposium*, Phoenix, AZ, March 1994.
 - R. Mittermeir, R. Mili and A. Mili, A System for Software Reuse: Preliminary Implementation, in *Proceedings, Sixth International Workshop on Software Reuse*, Owego, NY, November 2-4th, 1993.
 - R. Mili and A. Mili, A Formal Model for Software Specification and Its Automation, in *Proceedings ARO/AFOSR/ONR Workshop*, Monterey, Ca, October 1993.
 - R. Mili, B. Hodson, A. Mili and J. Raymond, Software Engineering Education in Government: The DSS Institute, in *Proceedings, National Workshop on Software Engineering Education*, Toronto, May 1993.
 - A. Mili, R. Mili and R. Mittermeir, A Formal Approach to Software Reuse: Design and Implementation, in *Proceedings, Fifth Annual Workshop on Software Reuse*, Palo Alto, CA, October 26-29, 1992.
 - N. Boudriga, A. Mili and R. Mili, An Automated Tool for Specification Validation: Design and Preliminary Implementation, in *Proceedings, 25th Hawaii International Conference on System Sciences*, Koloa, HI, January 7th-10th, 1992. IEEE Computer Society Press, pp 74-82, 1992.
 - N. Boudriga, A. Mili, F. Mili and R. Mili, Specifying and Verifying Data Types, in *Proceedings, Thirteenth Australian Computer Science Conference*, Melbourne, February 7th-9th, 1990.
- ## Grants
- PI, Specifying Agents in Multi-Agent Simulations *NSF*, 2007-2009. Total Proposal Budget: \$275,098.50. Submitted December 2006.
 - Co-PI, Infrastructure for Research in High-Assurance Real-time Net-centric Embedded Software Systems (HARNES). *NSF CRI*. PI: F. Bastani. Co-PI: R. Z. Mili, E. Wong, I. Yen, K. Zhang. 2007-2010. UTD budget request \$297,500. Total Proposal budget \$796, 890. Submitted November 2006.
 - Co-PI, Application for Federal Education Assistance in Areas of National Need, US Department of Education. PI: G. Gupta, Co-PIs: K. Zhang, R. Mili, S. Kim, DT Huiyuh, S. Ntafos. \$669,152, September 2006-September 2009. Awarded.
 - Principal Investigator. Using NLP Tools for Requirements Visualization. *NSF*, \$ 81,807, September 2001-September 2003. Awarded.

- Principal Investigator. Co-PI: I. G. Tollis. Visualizing Software Requirements. Sandia National Laboratories. \$ 50,446, November 1998-August 1999. Awarded.
- Co-PI, PI: Y. Chen, Co-PIs: B. Chen, L. Chung, D. Huiyuh, R. Prakash (University of Texas at Dallas). Establishing a Computer-Aided Education Environment using the Web Lecture System. Nortel. \$ 38,000. July 1998-July 1999. Awarded.
- Industrial Research Assistantships. Over \$ 200,000. Sponsors include Compaq, 3Tech Corporation, Glow Networks and Refraction Technology. Awarded.

Doctoral Students

- Jim Whitaker, GAAN fellow, *3D Environments for Multi-Agent Simulation Systems* expected to graduate Spring 2008.
- Sasikaran Kundula, *Graph Visualizations for Multi-Agent Systems*, expected to graduate Spring 2008.
- Rence Steiner, *Open Environments for Multi-Agent Simulation Systems*, Graduated Fall 2006.
- Rodolfo Castello, Fulbright Fellow, *From Informal to Formal Specification: An Automated Approach*. Graduated December 2000. Currently Assistant Professor and Dean of the Department of Computer Science, Institute of Technology and Higher Education of Monterey, Chihuahua Campus, Mexico.

Master's Students

- Thesis
 - Anusya Valenkar, *Acquaintance Models for Multi-Agent Systems*, Fall 2006.
 - Gary Leusk, *Two Dimensional Environment for the DIVAS's Multi-Agent System*, Fall 2005.
 - Suresh Kumar, *Using NLP tools for Requirements Visualization*, Spring 2004.
 - Halle Gowan, *Software Agent Task Scheduling*, Fall 2003.
 - Zhigang Li, *Visualizing Mobile Agents*, Spring 2002.
 - Pradipta Chatterjee, *Using VRML for the Visualization of Agent-Based Systems*, Spring 2002.
 - Johanna Dahl, *Version Control of Ericsson's Charying System*, graduated June 2001.
- Software Engineering Projects

These two semesters long projects are intended to provide an extensive hands-on experience in dealing with various issues related to software development. 25 Master's level students supervised.

Professional Service Contributions

Doctoral Committees

Member of the following doctoral committees:

- James Wesley Bell, Supervisor: Prof. H. Schweitzer, *Real-time Extraction of Information from a Video Stream*. Department of Computer Science, UT Dallas. Fall 2001-present.
- Xuerong Peng, Supervisor: Prof H. Sudborough, *Sorting by Exchanging Elements at Bounded Distance*, graduated summer 2005.
- Janet Six, Supervisor: Prof. I. G. Tollis, *Vis Tool: A Tool for Visualizing Graphs*. Department of Computer Science, UT Dallas. Graduated Fall 2000.
- Steve Chadwick, Supervisor: Prof. H. Sudborough, *Improving Classification Accuracy By Using Confidence Measures to Combine Classifiers*. Department of Computer Science, UT Dallas. Graduated Fall 2000.
- Hicham Mubayed, Supervisor: Prof. K. Trumper, *Intelligent Text Processing: Semantics Checking*. Department of Computer Science, UT Dallas. Graduated Summer 2000. Currently Associate Professor, University of Houston, Clear-Lake.
- Gaofeng Qian, Supervisor: Prof. K. Trumper, *Interpretation of On-Line Cursive Handwriting*. Department of Computer Science, UT Dallas. Graduated Fall 1997. Currently Project Manager, GTE.
- Yeong-Tae Song, Supervisor: Prof. DT. Huynh, *Forward Dynamic Slicing of Software Systems*. Department of Computer Science, UT Dallas. Graduated Summer 99. Currently Associate Professor, Towson University.

Service Contributions to the Department of Computer Science

- Member of *Erik Jonsson School Committee on Effective Teaching*, 2004-2005.
- Member of the *curriculum committee*, Department of Computer Science, University of Texas Dallas, 1997-2004.
- Member of the *ABET accreditation committee* for the Bachelor degree in Software Engineering, 2002-2003.
- Member of the *Ph.D. committee*, Fall 2006.
- Member of the *Ph.D. Qualifying exam committee* for CS6354 (Software Engineering), CS6361 (Requirements Engineering). Chair of the qualifying exam committee for CS6388 (Project Planning and Management). 2002-present.
- Member of the *Masters-Research Track committee*, 2003-2006.
- Member of the *search committee*, Department of Computer Science, University of Texas Dallas, 2002-2003.
- Member of *ad-hoc committee for tenure review*: J. Cobb, Department of CS, R. N. Uma, Department of CS, 2003.

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- Member of the *graduate admission committee*, Department of Computer Science, University of Texas Dallas, 1997-2001.

- Organizer of the *Colloquium Series in Software Engineering*, Department of Computer Science, University of Texas at Dallas, academic year 1996-97.

- Contributed to the proposal for the *Center for Application-Specific Software Engineering* (CASSE), Fall 1997.

- Contributed to the degree program proposal *Master of Science in Computer Science with Major in Software Engineering*, Department of Computer Science, University of Texas at Dallas, Fall 1996.

Service Contributions to UTD

- Member of the *committee for the Support of Diversity and Equity*, Fall 2006.
- Member of the *Core committee for the Support of Women and Minorities*, 2005-present.
- Member of the *Committee on Effective Teaching*, 2001-2003. The committee on effective teaching is a concurrent committee of the academic Senate of the University of Texas at Dallas. The Committee oversees and encourages the development of a wide range of tools and facilities to promote excellence in teaching across all disciplines and levels within the university.
- Member of the *Student Fee Committee*, 2004-2005.

Special Service Contribution to Department, School or University

- Contributed to the proposal for the *North Texas Net-Centric Software Technology Consortium*. This consortium is a "joint venture to collectively develop a premier source of fundamental software research and technology for net-centric systems. To be funded by Universities, federal and state governments, and industry members, the Consortium will promote and undertake fundamental research, education, and technology development for high quality net-centric software systems."
- Participants: UNT, UTD, UTA, SMU, Raytheon, Lockheed.
- Participated in the *ECS Outreach Program*, Summer 2005
 - Supervised two LSAMP students on research projects. LSAMP is the Louis Stokes Alliance for Minority Participation, an NSF program that was designed to foster achievement in minority students seeking degrees in science, technology, engineering and mathematics.
 - Lectured in the *Math, Sciences and Technology Readiness Institute*. About 150 middle school and high school students attended my lectures on introductory topics in CS.
- Lectured in the *DISD PACE (Problem solving, Analysis, Computer science and Engineering)* summer program, June 8- July 21, 2004.
- Chair, *Examining committee* for final oral defense of the doctoral dissertation, Shankar Balachandran, School of Engineering and Computer Science, Summer 2005; Caryn Voskull, School of Humanities, Fall 2000; Jeffrey Reed, Department of Physics, Fall 1997.

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Service Contributions External to UTD

Journal Review

- IEEE Transactions on Software Engineering
- Journal of Multi-Agent and Grid Systems
- Journal of Visual Languages and Computing
- Data and Knowledge Engineering Journal
- Journal of Systems and Software
- Annals of Software Engineering
- Software Practice and Experience
- Multi-Agent and Grid Systems, an International Journal
- Journal of Visual Languages and Computing

Program Committees

- 16th International Conference on Software Engineering and Data Engineering SEDE-2007. Las Vegas July 2007.
- HICSS-40, Software Technology Track, Visual Interactions in Software Artifact, Hawaii: January 2007.
- Conference on Software Engineering and Knowledge Engineering (SEKE'06). San Francisco, July 2006.
- Workshop on Agent-Oriented Software Development Methodology, San Francisco, July 2006.
- International Workshop on Visual Languages and Computing, 2004 and 2005.
- Tools for System Design and Verification, FM-Tools'02, Reimsburg, Germany, July 2002.

Conferences

- *Chapter chair*, Software Visualization, Lecture Notes in Computer Science, Stephan Diehl (ed.), Springer Verlag, vol. 2269, 2002.
- *Tutorial Chair*, Symposium on Application-Specific Software Engineering (ASSET'99), Spring 99.
- *Session Organizer*, session: *Software Reuse*, Fourth Joint Conference on Information Sciences (JCIS'98), October 1998.
- *Tutorial Chair*, IEEE Workshop on Application-Specific Software Engineering (ASSET'98), March 1998.
- *Panel Chair*, panel session: *Software Reliability and Quality Assurance*. Panel members: R. Appan (Nortel), W. Everett (SPRE), D. Faught (HP), F. Leung (Motorola), B. Stoddard (TI). IEEE Workshop on Application-Specific Software Engineering, ASSET'98, March 1998.

- *Session Chair*, session: *Repositories and Classification*, ACM SIGSOFT Symposium on Software Reusability, April 1995.
- *Panelist*, panel session: *The Effective Integration of Software Engineering Principles Throughout the Undergraduate Computer Science Curriculum*, ACM SIGSE Symposium on Computer Science Education, March 1995.

Book Review

- Hans Van Vliet, *Software Engineering. Principles and Practice*, John Wiley.
- Wayne Lim, *Managing Software Reuse*, Prentice Hall.

Invited Talks

- *VisiSa*, Seminars in Computer Science, Oklahoma State University, April 2002. Invited by Prof. Mansur Samadzadeh.
- *Visualization of Statecharts*, Dagstuhl Seminar on Software Visualization, Dagstuhl, Germany, May 2001.
- *Is a Picture Worth a Thousand Words?*, International Workshop on Software Reuse, WISR'99, Austin, Texas, January 1999.
- *Software Reuse: Organizational, Managerial and Technical Aspects*, American Society for Quality, Association of Software Engineering Excellence, Dallas, Texas, October 1998.
- *Using Functional Distances to Perform Approximate Retrieval*, Seminar on the Use of Relational Methods In Computer Science (RELMICS'97), Tunis, Tunisia, December 1997.
- *An ROI Model for Software Reuse*, E-Systems, Dallas, Texas, November 1995.
- *La Réutilisabilité: Une qualité du Logiciel*, Ecole Polytechnique de Montréal, Montréal, Canada. Invitation: Prof. Pierre N. Robillard. February 1995.
- *Validation of Relational Specifications: A Lattice Based Approach*, McMaster University, Hamilton, Ontario. Invitation: Prof. D. L. Parnas. April 1993.

Other Activities

- *Invited* by the Committee on the Status of Women in Computing Research (CRA-W) to participate in the Cohort of Associate Professors Project (CAPP), sponsored by an NSF ADVANCE grant. The goal of CAPP is to increase the percentage of Computer Science and Engineering women faculty with the rank of full professor by forming and mentoring a select group of women from the associate professor ranks, and assisting them in moving into leadership positions within the professional community. 2004-2006.

Professional Societies

- Member, *IEEE Computer Society*.
- Member, *Association of Computing Machinery*.

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CURRICULUM VITAE

Neeraj Mittal

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Erik Jonsson School of Engineering and Computer Science
The University of Texas at Dallas
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Richardson, TX 75083-0688, USA

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Email: neerajm@utdallas.edu URL: <http://www.utdallas.edu/~neerajm>

EDUCATION

Doctor of Philosophy (Ph.D.) in Computer Science, The University of Texas at Austin, USA, May 2002, (GPA: 4.0/4.0).

Dissertation Title: Techniques for Analyzing Distributed Computations

Advisor: Vijay K. Garg

Abstract: Designed, implemented and evaluated global fault detection and recovery algorithms for tolerating software faults in distributed programs.

Master of Science (M.S.) in Computer Science, The University of Texas at Austin, USA, May 1997, (GPA: 4.0/4.0).

Bachelor of Technology (B.Tech.) in Computer Science and Engineering, Indian Institute of Technology, Delhi, India, May 1995, (GPA: 9.75/10.0).

PROFESSIONAL EMPLOYMENT

August 2002 - Present: **Assistant Professor**, Department of Computer Science, *The University of Texas at Dallas*, Richardson, Texas, USA.

July 2004 - August 2004: **Visiting Professor**, Department of Computer Science, *RWTH (Rhone-Westphalia Technical University) Aachen*, Germany.

June 2002: **Post-Doctoral Fellow**, Electrical and Computer Engineering Department, *The University of Texas at Austin*, Austin, Texas, USA.

May 1999 - August 1999: **Summer Research Intern**, Content Management Group, *IBM Almaden Research Center*, San Jose, California, USA.

May 1997 - August 1997: **Summer Research Intern**, Quality of Service (QoS) Group, *Lucent Bell Laboratories*, Murray Hill, New Jersey, USA.

May 1994 - July 1994: **Software Engineer Intern**, *CMR Design Automation Pvt. Ltd.*, New Delhi, India.

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PROFESSIONAL ACTIVITY

August 1999 - May 2002: **Graduate Research Assistant**, Electrical and Computer Engineering Department, *The University of Texas at Austin*, USA.

June 1996 - May 1999: **Graduate Teaching Assistant**, Department of Computer Sciences, *The University of Texas at Austin*, USA.

HONORS AND AWARDS

MCD Graduate Fellowship: Awarded by University of Texas at Austin for graduate studies, 1995 - 1997.

Suresh Chandra Memorial Award: Awarded by Indian Institute of Technology, Delhi, for the best undergraduate software project, 1995.

Certificate of Merit: Awarded by Indian Institute of Technology, Delhi, for securing the highest grade point average, 1991 - 1994.

Secured 6th rank among more than 100,000 candidates in the Joint Entrance Examination (JEE) for the Indian Institute of Technologies (IIT's), 1991.

Gold Medal for securing first position in Mathematics Examination conducted by Ramanujan Society of Born Mathematicians, New Delhi, India, 1991.

Junior Science Talent Search Scholarship: Awarded by Directorate of Education, Delhi, India for two years, 1987 - 1989.

RESEARCH GRANTS

1. *A Robust Distributed Messaging Architecture based on Publish-Subscribe Framework*, January 16, 2007 - May 31, 2007, \$17,296. Investigator: Neeraj Mittal (PI). Funding Organization: Tektronix.

2. *Network-Centric Operations and Warfare: Modeling and Simulation Integration Center*, August 22, 2005 - August 31, 2006, \$200,000. Investigators: S. Venkatesan (PI), Ravi Prakash (co-PI) and Neeraj Mittal (co-PI). Funding Organization: Rockwell Collins.

AREAS OF RESEARCH

Distributed Systems, Software Fault Tolerance, Mobile Computing, Wireless Networking, and Sensor Networks.

RESEARCH COLLABORATORS

1. Prof. Vijay K. Garg, Department of Electrical and Computer Engineering, The University of Texas at Austin
2. Prof. S. Venkatesan, Department of Computer Science, The University of Texas at Dallas
3. Prof. Felix C. Freiling, Department of Computer Science, University of Mannheim, Germany
4. Prof. Ravi Prakash, Department of Computer Science, The University of Texas at Dallas

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5. Prof. R. Chandrasekaran, Department of Computer Science, The University of Texas at Dallas

6. Dr. Hui-I Hsiao, IBM Almaden Research Center

7. Dr. Chakrati Skawrananond, IBM Austin

8. Dr. Alper Sen, Freescale Semiconductor Inc.

9. Prof. Mukesh Singhal, Department of Computer Science, The University of Kentucky

10. Prof. Ajay D. Kshemkalyani, Department of Computer Science, University of Illinois at Chicago

PUBLICATIONS

A. Refereed Journal Publications

1. Neeraj Mittal and Prajwal K. Mohan. A Priority-Based Distributed Group Mutual Exclusion Algorithm when Group Access is Non-Uniform. Accepted for publication in *Journal of Parallel and Distributed Computing (JPDC)*, February 2007.

2. Neeraj Mittal, Alper Sen and Vijay K. Garg. Solving Computation Slicing using Predicate Detection. Accepted for publication in *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, January 2007.

3. Ranganath Atreya, Neeraj Mittal, Ajay D. Kshemkalyani, Vijay K. Garg and Mukesh Singhal. An Efficient Algorithm for Detecting a Locally Stable Predicate in a Distributed Computation. *Journal of Parallel and Distributed Computing (JPDC)*, volume 37, issue 4, pages 369-385, 2007.

4. Ranganath Atreya, Neeraj Mittal and Sathya Peri. A Quorum-Based Group Mutual Exclusion Algorithm for a Distributed System with Dynamic Group Set. Accepted for publication in *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, December 2006.

5. Sathya Peri and Neeraj Mittal. Improving the Efficacy of a Termination Detection Algorithm. Accepted for publication in *Journal of Information Science and Engineering (JISE)*, November 2006.

6. Vinay Madenur and Neeraj Mittal. A Delay-Optimal Group Mutual Exclusion Algorithm for a Tree Network. Accepted for publication in *Journal of Information Science and Engineering (JISE)*, October 2006.

7. Vijay K. Garg, Chakrati Skawrananond and Neeraj Mittal. Timestamping Messages and Events in a Distributed System using Synchronous Communication. Accepted for publication in *Distributed Computing (DC)*, October 2006.

8. Neeraj Mittal and Vijay K. Garg. Techniques and Applications of Computation Slicing. *Distributed Computing (DC)*, Volume 17, Number 3, pages 251-277, March 2005.

9. Neeraj Mittal and Vijay K. Garg. Finding Missing Synchronization in a Distributed Computation using Controlled Re-execution. *Distributed Computing (DC)*, Volume 17, Number 2, pages 107-130, August 2004.

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B. Refereed Conference Publications

10. Hai T. Vu, Neeraj Mittal and S. Venkatesan. THIS: Threshold security for information aggregation in sensor networks. Accepted for publication in *4th International Conference on Information Technology : New Generations (ITNG)*, Las Vegas, Nevada, USA, April 2007.
11. Neeraj Mittal, Kuppahalli L. Phaneesh and Felix C. Freiling. Safe Termination Detection in an Asynchronous Distributed System when Processes may Crash and Recover. In *Proceedings of the 10th International Conference on Principles of Distributed Systems (OPODIS)*, pages 126–141, Bordeaux, France, December 2006.
12. Felix C. Freiling, Matthias Majumke and Neeraj Mittal. Termination Detection in an Asynchronous Distributed System with Crash-Recovery Failures (Brief Announcement). In *Proceedings of the 8th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS)*, Dallas, Texas, USA, November 2006.
13. Srinivasan Krishnamurthy, R. Chandrasekaran, Neeraj Mittal and S. Venkatesan. Synchronous Distributed algorithms for Node Discovery and Configuration in Multi-channel Cognitive Radio Networks (Brief Announcement). In *Proceedings of the 20th International Symposium on Distributed Computing (DISC)*, pages 572–574, Stockholm, Sweden, September 2006.
14. Sathya Peri and Neeraj Mittal. On Efficient Departure for Dynamic Asynchronous Systems (Poster Presentation). In *Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC)*, Denver, Colorado, USA, July 2006.
15. Sathya Peri and Neeraj Mittal. Monitoring Stable Properties in Dynamic Peer-to-Peer Distributed Systems. In *Proceedings of the 25th Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*, pages 420–431, Hyderabad, India, December 2005.
16. Neeraj Mittal and Prajwal K. Mohan. An Efficient Distributed Group Mutual Exclusion Algorithm for Non-Uniform Group Access. In *Proceedings of the 17th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)*, pages 367–372, Phoenix, Arizona, USA, November 2005.
17. Srinivasan Krishnamurthy, Mansi Thoplian, Srikanth Kuppa, S. Venkatesan, R. Chandrasekaran, Neeraj Mittal and Ravi Prakash. Time-efficient Layer-2 Auto-configuration for Cognitive Radios. In *Proceedings of the 17th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)*, pages 459–464, Phoenix, Arizona, USA, November 2005.
18. S. Venkatesan, Maulin Patel and Neeraj Mittal. A Distributed Algorithm for Path Restoration in Circuit Switched Communication Networks. In *Proceedings of the 24th IEEE Symposium on Reliable and Distributed Systems (SRDS)*, pages 226–236, Orlando, Florida, USA, October 2005.
19. Neeraj Mittal, Felix C. Freiling, S. Venkatesan and Lucia D. Penso. Efficient Reduction for Wait-Free Termination Detection in a Crash-Prone Distributed System. In *Proceedings of the 19th International Symposium on Distributed Computing (DISC)*, pages 93–107, Cracow, Poland, September 2005.

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20. Ranganath Atreya and Neeraj Mittal. A Dynamic Group Mutual Exclusion Algorithm using Surrogate-Quorums. In *Proceedings of the 25th IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 251–260, Columbus, Ohio, USA, June 2005.
21. Neeraj Mittal, S. Venkatesan and Sathya Peri. Message-Optimal and Latency-Optimal Termination Detection Algorithms for Arbitrary Topologies. In *Proceedings of the 18th International Symposium on Distributed Computing (DISC)*, pages 290–304, Amsterdam, The Netherlands, October 2004.
22. Sathya Peri and Neeraj Mittal. On Termination Detection in an Asynchronous Distributed System. In *Proceedings of the 17th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS)*, pages 209–215, San Francisco, California, USA, September 2004.
23. Neeraj Mittal, Alper Sen, Vijay K. Garg and Ranganath Atreya. Finding Satisfying Global States: One for All and All for One. In *Proceedings of the 18th International Parallel and Distributed Processing Symposium (IPDPS)*, Santa Fe, New Mexico, USA, April 2004.
24. Bharat Goyal, Neeraj Mittal and S. Venkatesan. A Dynamic Approach to Test Programs for Binding Based Race Condition Vulnerabilities. In *Proceedings of the South Central Information Security Symposium (SCISS)*, Houston, Texas, USA, April 2004.
25. Ranganath Atreya, Neeraj Mittal and Vijay K. Garg. Detecting Locally Stable Predicates without Modifying Application Messages. In *Proceedings of the 7th International Conference on Principles of Distributed Systems (OPODIS)*, pages 20–33, La Martinique, France, December 2003.
26. Neeraj Mittal and Vijay K. Garg. Software Fault Tolerance of Distributed Programs using Computation Slicing. In *Proceedings of the 23rd IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 105–113, Providence, Rhode Island, USA, May 2003.
27. Bharat Goyal, Sriranjani Sitaraman, Neeraj Mittal and S. Venkatesan. A Partial Order Approach to Detect Race Condition Attacks. In *Proceedings of the South Central Information Security Symposium (SCISS)*, Denton, Texas, USA, April 2003.
28. Bharat Goyal, Sriranjani Sitaraman, Neeraj Mittal and S. Venkatesan. Methods to Tackle Vulnerabilities Caused by Lack of Mutual Exclusion. In *Proceedings of the Texas Workshop on Security of Information Systems (TWSIS)*, pages 17–21, College Station, Texas, USA, April 2003.
29. Neeraj Mittal and Vijay K. Garg. Computation Slicing: Techniques and Theory. In *Proceedings of the 15th International Symposium on Distributed Computing (DISC)*, pages 78–92, Lisbon, Portugal, October 2001.
30. Vijay K. Garg and Neeraj Mittal. On Slicing a Distributed Computation. In *Proceedings of the 21st IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 322–329, Phoenix, Arizona, USA, April 2001 (nominated for the best paper award).
31. Neeraj Mittal and Vijay K. Garg. On Detecting Global Predicates in Distributed Computations. In *Proceedings of the 21st IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 3–10, Phoenix, Arizona, USA, April 2001.

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32. Neeraj Mittal and Hui-I Hsiao. Database Managed External File Update. In *Proceedings of the 17th IEEE International Conference on Data Engineering (ICDE)*, pages 557-564, Heidelberg, Germany, April 2001.

33. Neeraj Mittal and Vijay K. Garg. Debugging Distributed Programs using Controlled Re-execution. In *Proceedings of the 19th ACM Symposium on Principles of Distributed Computing (PODC)*, pages 239-248, Portland, Oregon, USA, July 2000.

34. Chakraborty Skawrananond, Neeraj Mittal and Vijay K. Garg. A Lightweight Algorithm for Causal Message Ordering in Mobile Computing Systems. In *Proceedings of the 12th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS)*, pages 245-250, Florida, USA, 1999.

35. Neeraj Mittal and Vijay K. Garg. Consistency Conditions for Multi-Object Distributed Operations. In *Proceedings of the 18th IEEE International Conference on Distributed Computing Systems (ICDCS)*, pages 582-589, Amsterdam, The Netherlands, May 1998.

C. Submitted Manuscripts to Journals

36. Sathya Peri and Neeraj Mittal. Monitoring Stable Properties in Dynamic Asynchronous Distributed Systems. Submitted to *Distributed Computing (DC)*, September 2006.

37. Neeraj Mittal, Felix C. Freiling, S. Venkatesan and Lucia D. Peuso. On Termination Detection in Crash-Prone Distributed Systems with Failure Detectors. Submitted to *Distributed Computing (DC)*, March 2006.

38. Neeraj Mittal, S. Venkatesan and Sathya Peri. Message-Optimal and Latency-Optimal Termination Detection Algorithms for Arbitrary Topologies. Submitted to *Distributed Computing (DC)*, January 2005.

D. Submitted Manuscripts to Conferences

39. Neeraj Mittal, Srinivasan Krishnamurthy, R. Chandrasekaran and S. Venkatesan. A Fast Deterministic Algorithm for Neighbor Discovery in Multi-Channel Cognitive Radio Networks. Submitted to the *26th Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC)*, August 2007.

40. Felix C. Freiling, Matthias Majumtke and Neeraj Mittal. On Detecting Termination in the Crash-Recovery Model. Submitted to the *13th European Conference on Parallel and Distributed Computing (Euro-Par)*, August 2007.

41. Neeraj Mittal. A Cluster-Based Key Pre-Distribution Scheme using Deployment Knowledge. Submitted to the *IEEE International Conference on Distributed Computing Systems (ICDCS)*, June 2007.

E. Articles in Edited Volumes

42. Vijay K. Garg and Neeraj Mittal. A Critique of Java for Concurrent Programming. *IEEE Distributed Systems Online*, Volume 6, Number 9, September 2005.

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43. Vijay K. Garg, Neeraj Mittal and Alper Sen. Applications of Lattice Theory to Distributed Computing. *ACM Special Interest Group on Algorithms and Computation Theory (SIGACT) News Distributed Computing Column*, Volume 34, Number 3, pages 40-61, September 2003.

F. Invited Papers

44. Vijay K. Garg, Neeraj Mittal and Alper Sen. Using Order in Distributed Computing. *American Mathematical Society (AMS) Annual Meeting*, San Antonio, Texas, USA, January 2006.

G. Technical Reports

45. Neeraj Mittal and Tarun R. Belagodu. On Maximum Key Pool Size for a Key Pre-Distribution Scheme in Wireless Sensor Networks. *Technical Report UTDCS-17-06*, Department of Computer Science, The University of Texas at Dallas, April 2006.

46. Neeraj Mittal and Vijay K. Garg. Rectangles are Better than Chains for Encoding Partially Ordered Sets. *Technical Report UTDCS-07-05*, Department of Computer Science, The University of Texas at Dallas, February 2005.

47. Neeraj Mittal and Vijay K. Garg. A Rigorous Proof of $O(n^2)$ Bound on the Number of Moves for Stabilization of Dijkstra's 3-State Algorithm. *Technical Report TR-PDS-2001-005*, The Parallel and Distributed Systems Laboratory, Department of Electrical and Computer Engineering, The University of Texas at Austin, December 2001.

MASTER'S STUDENTS SUPERVISED

1. Kuppahalli L. Phaneesh, Summer 2006
2. Tarun R. Belagodu, Spring 2006
3. Vinay Madenur, Fall 2005
4. Prajwal K. Mohan, Summer 2005
5. Vedha C. Bharathi, Spring 2005
6. Ranganath Atreya, Fall 2004

PROFESSIONAL AND UNIVERSITY SERVICES

1. Member, Program Committee, Third IFIP International Conference on Embedded and Ubiquitous Computing (EUC), 2007
2. Member, Program Committee, Twenty-Seventh IEEE International Conference on Distributed Computing Systems (ICDCS), 2007
3. Member, Program Committee, Fifth IEEE International Workshop on Assurance in Distributed Systems and Networks (ADSN), 2006
4. Chair, Program Committee, First IASTED International Workshop on Distributed Algorithms and Applications for Wireless and Mobile Systems (DAAWMS), 2005

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5. Reviewer for Journals, Conferences, Symposiums and Workshops
 - Distributed Computing (DC)
 - IEEE Transactions on Parallel and Distributed Systems (TPDS)
 - IEEE Transactions on Software Engineering (TSE)
 - IEEE Transactions on Mobile Computing (TMC)
 - Journal of Parallel and Distributed Computing (JPDC)
 - The Computer Journal
 - International Journal of Wireless and Mobile Computing (IJWMC)
 - Journal of Systems and Software (JSS)
 - Information Processing Letters (IPL)
 - ACM Symposium on Principles of Distributed Computing (PODC)
 - International Symposium on Distributed Computing (DISC)
 - IEEE International Conference on Distributed Systems (ICDCS)
 - IEEE International Conference On Networking, Sensing and Control (ICNSC)
 - Foundations of Software Technology and Theoretical Computer Science (FSTTCS)
 - International Parallel and Distributed Processing Symposium (IPDPS)
 - International Conference on Dependable Systems and Networks (DSN)
 - Symposium on Reliable Distributed Systems (SRDS)
 - European Conference on Parallel Computing (Euro-Par)
 - Annual European Symposium on Algorithms (ESA)
 - Latin-American Symposium on Dependable Computing (LADC)
 - International Symposium on Stabilization, Safety and Security of Distributed Systems (SSS)
 - Workshop on Self-Stabilizing Systems (WSS)
 - Advances in Software Engineering (ASE)
6. Professional Organizations Membership
 - Association for Computing Machinery (ACM)
 - IEEE (Institute of Electrical and Electronics Engineers) Computer Society

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RESUME

Dan I. Moldovan

Department of Computer Science
The University of Texas at Dallas, Richardson, TX 75083-0688
Tel (972) 883-4838, email: moldovan@utdallas.edu

FIELD:

Computer Science and Engineering
(Natural Language Processing, Artificial Intelligence,
(Parallel and Distributed Systems, Computer Architecture)

EDUCATION:

Ph.D. in Electrical Engineering and Computer Science
Columbia University, New York, 1978.
M. S. in Electrical Engineering and Computer Science,
Columbia University, New York, 1974.
Diploma Engineer in Electrical Engineering,
Polytechnic Institute of Bucharest, Romania, 1969

EXPERIENCE:

A. Research Policy at National Level

Program Director, National Science Foundation, Washington D.C.
(Sabbatical year 1987 - 1988)
Directed Experimental Systems Program in the Division of Microelectronics
and Information Processing Systems

B. Academic

Professor of Computer Science, University of Texas at Dallas

Chairman of the Computer Science and Engineering Department
Southern Methodist University, Dallas, Texas 75275

Professor of Computer Science and Engineering, and
Director of the Parallel and Distributed Computer Systems Laboratory
Southern Methodist University, Dallas, Texas 75275

Associate Professor of Computer Engineering, and
Director of the Parallel Knowledge Processing Laboratory,
University of Southern California, Los Angeles

Assistant Professor of Computer Engineering,
University of Southern California, Los Angeles

Assistant Professor of Electrical Engineering,
Colorado State University, Fort Collins, Colorado

8/2001-
Present

8/1994-
7/1998

8/1993-
8/2001

5/1986-
8/1993

9/1981-
5/1986

9/1979-
8/1981

Current Research:

- Direct the InterVoice Research Center in the Human Language Technology Research Institute at UTD.
- Co-direct the development of a state-of-the-art Question Answering system that achieved the best performance at TREC-8 (1999), TREC-9 (2000), TREC-11 (2002), TREC-12 (2003) and TREC-13 (2004) QA competitions.
- Develop a Knowledge Acquisition from Text (KAT) system that discovers concepts and relations for the purpose of extending WordNet interactively with domain-specific knowledge.
- Develop Word Sense Disambiguation (WSD) methods for open text.
- Develop a new technology for Semantic Indexing and Retrieval of texts that uses word semantics for the purpose of increasing the conciseness and the relevance of the information retrieved.
- Develop a tool for transforming WordNet into a knowledge base by disambiguating the glosses and transforming them in logical and semantic forms.
- Develop a Distributed Question Answering system using a Distributed Java Virtual Machine environment. Study the scalability of some Applied Natural Language Processing algorithms on parallel and distributed computers.

Previous Research:

- Worked on Parallel Processing applied to Natural Language Processing including inferences, acquisition of linguistic patterns, and parsers
- Studied marker-propagation as a new computational paradigm for Artificial Intelligence problems
- Parallel processing of Rule Based Systems
- Design of systolic arrays and other array processors
- Mapping computational algorithms into parallel architectures
- Microprocessor-based real-time systems

Major Experimental Systems

- Co-direct the development of a Question Answering System.
- Directed the development of Information Extraction systems for Message Understanding Conferences (MUC) in 1992, 1993, and 1995
- Originated and directed the SNAP Project.

The Semantic Network Array Processor (SNAP) is a massively parallel computer dedicated to natural language processing and other artificial intelligence applications. A prototype consisting of 160 32-bit processors has been designed and implemented in our laboratory.

Teaching:

Taught courses in computer architecture, parallel and distributed processing, artificial intelligence, natural language processing, advanced knowledge bases, machine learning, microprocessor-based systems, knowledge representation and reasoning and intelligent systems.

Research Grants: (Principal Investigator or otherwise stated)

1. InterVoice, 2002-2006, Research in Automatic Speech Recognition Systems, (\$1,000,000).
 2. ATP State of Texas, 2002-2003, Text Mining for Telecommunications (\$240,000)
 3. NSF, 2000-2006, to develop a Tool for automatic transformation of WordNet into a Knowledge Base (\$695,400)
 4. NSF, 2000-2003, Adaptive Protocols for Distributed Java Virtual Machine, (\$210,000)
 5. NSF, 1996-1998, to study SCI-based Multiprocessor Systems (\$20,000)
 6. NT&T, 1995, discretionary funds (\$10,000)
 7. NSF, 1994-1997, to study Marker-Propagation Networks (\$240,000)
 8. NSF, 1990-1994, to design and build Semantic Network Array Processor (\$1,400,000)
 9. NSF, 1989-1990, to investigate Semantic Network Array Processor (\$150,000)
 10. AT&T, 1988-1990, to investigate Parallel Processing of Production Systems (\$146,000)
 11. NSF, 1983-1986, to investigate efficient mapping of computational algorithms into special-purpose VLSI architectures (\$98,000)
 12. NSF, 1980-1983, to investigate Solution of Matrix Riccati Equation on microcomputers (\$40,000)
 13. DARPA, 1983-1986, to investigate parallel algorithms and special-purpose architectures for image understanding (Dr. Nevatia P.I., Moldovan's budget was approximately \$150,000)
 14. JSEP, 1982-1985, to investigate design of algorithmically-specialized VLSI devices (\$150,000)
 15. JSEP, 1986-1988, to study parallel processing applied to artificial intelligence (\$100,000)
- #### Equipment Grants:
1. Intel Corporation, 1989, Microprocessor Equipment for the Microprocessor Undergraduate Laboratory (with Dr. Ung and Mr. Puvvada \$110,000)
 2. Shell Foundation, 1987, Computer Equipment for Research (\$120,000).

3. Hewlett-Packard, 1982, Development Stations for Microprocessor-Based Systems (\$100,000)
4. Texas Instruments, 1990, Components for the SNAP Computer (\$25,000)

Ph.D. Students Completed:

- J. A. B. Fortes - Thesis: "Algorithm Transformations for Parallel Processing and VLSI Architecture Design" May 1984.
- Y. W. Tung - Thesis: "Parallel Processing Models for Logic Programming" May 1986.
- F. Tenorio - Thesis: "Parallel Processing of Production Systems," May 1986.
- T. C. Lin - Thesis: "Mapping Algorithms into SIMD Computer Architectures," May 1986.
- C. I. Wu - Thesis: "A Hierarchical Knowledge Based System for Airplane Recognition," Dec. 1987.
- V. Dixit - Thesis: "Transformation Techniques for Parallel Processing of Production Systems," Dec. 1987.
- S. Kuo - Thesis: "Parallel Asynchronous Message-Driven Production Systems," Dec. 1991.
- W. Lee - Thesis: "A Parallel Marker-Passing Computer for Knowledge Processing," Aug. 1992.
- R. DeMara - Thesis: "Performance Analysis of SNAP," Dec. 1992.
- S. Cha - Thesis: "Reference Resolution in Natural Language Discourse," December 1993.
- M. Chung - Thesis: "Parallel Natural Language Processing," August 1993, presently Assistant Professor, Seoul, Korea.
- S. Chung - Thesis: "Speech Understanding on SNAP," August 1993.
- J. Kim - Thesis: "Semantic Knowledge Acquisition for Information Extraction from Texts on Parallel Marker-Passing Computer," August 1993.
- Eric C. Lin - Thesis Topic: "Parallelism Analysis in Marker Propagation Networks," August 1994.
- S. Kowalski - Thesis Topic: "Linguistic Knowledge Acquisition from Texts," December 1994.
- Galippi - Thesis Topic: "Noun Disambiguation in Texts", August 1996.
- Chin-Yew Lin - Thesis Topic: "Text Summarization," May 1997, presently at USC/ISI.
- S. Harabagiu - Thesis Topic: "Text Coherence Analysis", August 1997.
- P. Golla - Thesis Topic: "Kuma: A Kernel-User Multithreading Architectural Model", May 1999.
- Mihai Surdeanu - Thesis Topic: "Distributed Question Answering", May 2001.

- Rada Mihalcea - Thesis Topic: "Turning Implicit Knowledge into Explicit Knowledge via Word Semantics: a Model for Information Retrieval", December 2001.
- Vasile Rus, Thesis Topic "Logic Form For WordNet Glosses and Application to Question Answering", May 2002.
- Roxana Girju - Thesis Topic: "Text Mining for Semantic Relations", May 2002
- Adriana Badulescu - Thesis Topic: "Classification of Semantic Relations between Nouns", December 2004
- Adrian Novischi - Thesis Topic: "Semantic Disambiguation of WordNet Glosses and Lexical Chains on Extended WordNet", December 2005

Current Ph.D. Students:

Direct and/or support nine PhD students working in Natural Language Processing and Distributed Systems.

Services to professional organizations:

- Vice Chair for the NSF Workshop on High Performance Computing and Communication: Vision, Natural Language and Speech Processing, and Artificial Intelligence, February 1992
- Member of several NSF Panels for Presidential Young Investigators, Research Initiation, and CAREER Awards
- Area Editor for International Journal of Mini and Microcomputers
- Area Editor for Journal of Parallel and Distributed Computing
- Co-chairman for The First International Workshop on Parallel Processing for Artificial Intelligence; organized in conjunction with IJCAI-91, Sydney, Australia
- Served as a reviewer for books and journal papers in the area of digital systems and parallel processing
- Conference session organizer and chair

C. Industrial Experience:

Consulting:

Technical consultant to Aerojet ElectroSystems, Hughes Research Laboratory, TRW, CoreIntellect

1976-1979 **Member of Technical Staff - Bell Laboratories, Holmdel, New Jersey**

Performed exploratory work in telecommunications, principally in area of architectures of advanced data and voice communications systems.

Developed a specialized microcomputer to monitor telephone traffic in a computerized communication system. Implemented a parallel processing technique.

Investigated the applicability of bubble memories for microprocessor-based communication system.

Developed memory circuits for a microprocessor-based communication system.

Developed programs for microprocessors.

1971-1973 **Electrical Engineer, Conrac Corporation, West Caldwell, New Jersey**

Developed digital and analog circuits for a specialized military airborne computer.

PUBLICATIONS:

Books

1. Dan I. Moldovan, "Parallel Processing: From Applications to Systems," Morgan Kaufmann Publishers, 1993, San Mateo, California, (567 pages).

Book Chapters

1. "Some Advanced Features of LCC's PowerAnswer" in *Advances in Open Domain Question Answering*, Springer, 2006, 3-34.
2. "On the Role of Information Retrieval and Information Extraction in Question Answering Systems" in *Information Extraction in the Web Era*, Springer, 2003, 129-147.
3. "Textual Question Answering", in *Oxford Handbook of Computational Linguistics*, Oxford Press 2003, R. Mitkov, editor, 560-582.
4. "Enriching the WordNet Taxonomy with Contextual Knowledge Acquired from Text" in *Natural Language Processing and Knowledge Representation: Language for Knowledge and Knowledge for Language*, AAAI/MIT Press 2000, S. Shapiro and L. Iwanska editors, 301-334.
5. "Knowledge Processing on an Extended WordNet", in *WordNet: An Electronic Lexical Database and Some of its Applications*, MIT Press, 1998, Cristiane Felbaum, editor, pp 379-405.
6. "A Parallel Computational Model for Integrated Speech and Natural Language Understanding," *Massively Parallel AI*, AAAI/MIT Press, 1994, J. Hendler and H. Kitano, editors, pp 138-170.
7. "Mapping Production Systems into Multiprocessors," reprinted in *Computer Architectures for Artificial Intelligence Applications*, IEEE Computer Society, Oct. 1986, B. W. Wah and G. J. Li, editors.
8. "On the Design of algorithms for VLSI Systems," reprinted in *Interconnection Networks for Parallel and Distributed Processing*, IEEE Computer Society, Aug. 1984, C. L. Wu and T. Y. Feng, editors.
9. "Towards a Computerized Optimal Design of VLSI Systolic Arrays," *Advances in CAD for VLSI*, vol. 6, *Design Methodology*, North-Holland Publishing Company, S. Goto (Japan) editor, September 1985.

Journals

1. D. Moldovan, C. Clark, S. Harabagiu and D. Hodges, "COGEX: A Semantically and Contextually Enriched Logic Prover for Question Answering", *Journal of Applied Logic*, Vol. 5(1), March 2007, 49-69
2. R. Girju, A. Badulescu, and D. Moldovan, "Automatic Discovery for Part-Whole Relations," *Computational Linguistics*, Vol. 32(1) March 2006, 83-135
3. D. Moldovan and R. Girju, "Learning the Semantics of Noun Compounds," *Computing Meaning*, Vol. 4, Kluwer, Harry Bunt, editor, 2006
4. R. Girju, D. Moldovan, M. Tatu, D. Antohe "On the Semantics of Noun Compounds," *Journal of Computer Speech and Language-Special Issue on Multiword Expressions*, Aline Villavicencio, Francis Bond, Diana McCarthy, editors, vol 19, no. 4, October 2005, 479-496.
5. O. Fortu and D. Moldovan, "Identification of Textual Contexts", *CONTEXT*, LNAI 3554, ed by A. Dey et al. Berlin Heidelberg Springer-Verlag, pp. 169-182, 2005
6. Dan Moldovan and Adrian Novischi, "Word Sense Disambiguation of WordNet Glosses," *Journal of Computer Speech and Language* vol 18, no. 3, pp 301-317, 2004.
7. Dan Moldovan et al., "Performance Issues and Error Analysis in an Open-Domain Question Answering System", *ACM Transactions on Information Systems*, vol 21(2), pp. 133-154 April 2003
8. Vasile Rus, Dan I. Moldovan, "High Performance Logic Form Transformation" *International Journal on Artificial Intelligence Tools* 11(3): 437-454, 2002.
9. Mihai Surdeanu, Dan I. Moldovan and Sanda Harabagiu, "Performance Analysis of a Distributed Question Answering System", *IEEE Transactions on Parallel and Distributed Systems*, vol 13, no. 6, pp 579 - 596, June 2002.
10. Mihai Surdeanu and Dan I. Moldovan, "Design and Performance of a Distributed Java Virtual Machine", *IEEE Transactions on Parallel and Distributed Systems*, vol 13, no. 6, pp 611-627, June 2002.
11. Dan Moldovan, "Question Answering Systems in Knowledge Management", *IEEE Intelligent Systems*, vol 16, nr 6, pp 90 - 92, Dec. 2001
12. Dan I. Moldovan and Roxana Girju, "An Interactive Tool for the Rapid Development of Knowledge Bases", *International Journal on Artificial Intelligence Tools*, vol 10, no 1-2, March 2001
13. Rada Mihalcea and Dan Moldovan, "A Highly Accurate Bootstrapping Algorithm for Word Sense Disambiguation", *International Journal on Artificial Intelligence Tools*, vol.10, no.1-2, pp 5-21, 2001.
14. Rada Mihalcea and Dan Moldovan, "Document Indexing using Named Entities", *Studies in Informatics and Control*, vol.10, no.1, pg.21-27, 2001.

15. Rada Mihalcea and Dan Moldovan, "AutoASC - A System for Automatic Acquisition of Sense tagged Corpora", *International Journal of Pattern Recognition and Artificial Intelligence*, pp 3-17, vol.14, no.1, 2000.
16. D. I. Moldovan and R. Mihalcea, "Using WordNet and Lexical Operators to Improve Internet Searches", *IEEE Internet Computing*, January 2000, pp 34-42
17. R. Mihalcea and D. I. Moldovan, "AutoASC - A System for Automatic Acquisition of Sense Tagged Corpora", *International Journal for Pattern Recognition and Artificial Intelligence*, February 2000.
18. T. Yukawa, S. Harabagiu and D. I. Moldovan, "Viewpoint-Based Similarity Discrimment on SNAP", *IEICE Transactions on Information and Systems*, February 1999, pp 500-502.
19. S. M. Harabagiu and D. I. Moldovan, "A Parallel Inference System," *IEEE Transactions on Parallel and Distributed Systems*, August 1998, pp 729-747.
20. S. M. Harabagiu and D. I. Moldovan, "TextNet: A Text-based Intelligent System," *Natural Language Engineering*, vol 3, Cambridge University Press, 1997, pp 171-190.
21. J. T. Kim and D. I. Moldovan, "Lexical Knowledge Acquisition for Knowledge-Based Information Extraction," *IEEE Transactions on Knowledge and Data Engineering*, October 1995, pp 713-724.
22. M. Chung and D. I. Moldovan, "Parallel Natural Language Processing on SNAP," *IEEE Transactions on Knowledge and Data Engineering*, June 1995, pp391-405
23. S. Cha and D. Moldovan, "A Marker-Passing Algorithm for Reference Resolution," *International Journal on Artificial Intelligence Tools*, Vol 3, Nr. 2, June 1994, pp 209-232.
24. Minhwa Chung and Dan Moldovan, "PARALLEL: Applying Parallel Processing to NLP," *IEEE Expert*, February 1994.
25. Jun-Tae Kim and Dan Moldovan, "Classification and Retrieval of Knowledge on Parallel Marker Passing Architecture," *IEEE Transactions on Knowledge and Data Engineering*, October 1993, pp 753-761.
26. S. H. Chung, D. I. Moldovan and R. F. DeMara, "A Parallel Computational Model for Integrated Speech and Natural Language Understanding," *IEEE Transactions on Computers*, October 1993, pp 1171-1183.
27. R. DeMara and D. I. Moldovan, "The SNAP-1 Parallel AI Prototype," *IEEE Transactions on Parallel and Distributed Systems*, August 1993, pp 841-854.
28. B. Wah, T. S. Huang, A. K. Joshi, D. Moldovan, et al. "Report on Workshop on High Performance Computing and Communications for Grand Challenge Applications: Computer Vision, Speech and Natural Language Processing, and Artificial Intelligence," *IEEE, Transactions on Knowledge and Data Engineering*, February 1993, pp. 138-154.
29. S. Chung, and D. Moldovan, "Modeling Semantic Networks on the Connection Machine," *Journal of Parallel and Distributed Computing*, February 1993, pp. 152-163
30. D. Moldovan, W. Lee and C. Lin, "Parallel Knowledge Processing on SNAP," *IEEE Transactions on Knowledge and Data Engineering*, February 1993, pp. 65-75

31. Steve Kuo and Dan Moldovan, "A Parallel Asynchronous Message-Driven Production System," *International Journal of Expert Systems: Research and Applications*, 1992, vol. 5, no. 1, pp.23-53
32. D. Moldovan, W. Lee, C. Lin and M. Chung, "SNAP: Parallel Processing Applied to AI," *IEEE Computer*, May 1992, pp. 39-49.
33. S. Kuo and D. I. Moldovan, "The State-of-the-Art in Parallel Processing of Production Systems," *Journal of Parallel and Distributed Computing*, May 1992, pp. 1-26
34. D. Moldovan, W. Lee and C. Lin, "SNAP: A Marker - Propagation Architecture for Knowledge Processing," *IEEE Transactions on Parallel and Distributed Systems*, July 1992, pp. 397-410.
35. V. Dixit and D. I. Moldovan, "Minimal Search Space in Production Systems," *IEEE Transactions on Knowledge and Data Engineering*, December 1991, pp 435-443.
36. S. Kuo and D. I. Moldovan, "Implementation of Multiple Rule Firing Production Systems on Hypercube," *Journal of Parallel and Distributed Computing*, December 1991, pp 383-394
37. V. Dixit and D. I. Moldovan, "The Allocation Problem in Parallel Production Systems," *Journal of Parallel and Distributed Computing*, January 1990, pp 20-29
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Department of Computer Science

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Ithaca, NY

Fall 1998

Teaching Assistant for Computer Science 211, Computers and Programming
Department of Computer Science

Publications

Journal Articles

Unsupervised Morphological Parsing of Bengali.

Sajib Dasgupta and Vincent Ng.

Language Resources and Evaluation, A Special Triple-Issue on Asian Language Technology: Resources and Processing, 2007. (Acceptance rate: 30%)

A Nltk Analysis of Mobile IPv6.

Daniel Jackson, Vincent Ng, and Jeannette Wing.

Formal Aspects of Computing, 11(6), 591-615, 1999.

Conference Publications

High-Performance, Language-Independent Morphological Segmentation.

Sajib Dasgupta and Vincent Ng.

Proceedings of the Joint Human Language Technology Conference and Annual Meeting of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT), Rochester, NY, 2007. (Acceptance rate: 24%)

Unsupervised Word Segmentation for Bangla.

Sajib Dasgupta and Vincent Ng.

Proceedings of the Fifth International Conference on Natural Language Processing (ICON), 15-24, Hyderabad, India, 2007. (Accepted for oral presentation; 12% of the submitted papers were given oral presentations; 24% acceptance overall)

Shallow Semantics for Coreference Resolution.

Vincent Ng.

Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI), 1689-1694, Hyderabad, India, 2007. (Accepted for oral presentation; 16% of the submitted papers were given oral presentations; 34% acceptance overall)

Examining the Role of Linguistic Knowledge Sources in the Automatic Identification and Classification of Reviews.
 Vincent Ng, Sajib Dasgupta, and S. M. Niaz Arifin.
Proceedings of the COLING/ACL 2006 Main Conference Poster Sessions, 611-618, Sydney, Australia, 2006. (Acceptance rate: 43%)

Machine Learning for Coreference Resolution: From Local Classification to Global Ranking.
 Vincent Ng.
Proceedings of the 43rd Annual Meeting of the Association for Computational Linguistics (ACL), 157-164, Ann Arbor, MI, 2005. (Acceptance rate: 18%)

Supervised Ranking for Pronoun Resolution: Some Recent Improvements.
 Vincent Ng.
Proceedings of the 39th National Conference on Artificial Intelligence (AAAI), 1081-1086, Pittsburgh, PA, 2005. (Acceptance rate: 28%)

Learning Noun Phrase Anaphoricity to Improve Coreference Resolution: Issues in Representation and Optimization.
 Vincent Ng.
Proceedings of the 42nd Annual Meeting of the Association for Computational Linguistics (ACL), 152-159, Barcelona, Spain, 2004. (Acceptance rate: 25%)

Weakly Supervised Natural Language Learning Without Redundant Views.
 Vincent Ng and Claire Cardie.
Human Language Technology Conference of the North American Chapter of the Association for Computational Linguistics: Main Proceedings (HLT-NAACL), 173-180, Edmonton, Canada, 2003. (Acceptance rate: 22%)

Bootstrapping Coreference Classifiers with Multiple Machine Learning Algorithms.
 Vincent Ng and Claire Cardie.
Proceedings of the 2003 Conference on Empirical Methods in Natural Language Processing (EMNLP), 113-120, Sapporo, Japan, 2003. (Acceptance rate: 23%)

Improving Machine Learning Approaches to Coreference Resolution.
 Vincent Ng and Claire Cardie.
Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics (ACL), 104-111, Philadelphia, PA, 2002. (Acceptance rate: 26%)

Combining Sample Selection and Error-Driven Pruning for Machine Learning of Coreference Rules.
 Vincent Ng and Claire Cardie.
Proceedings of the 2002 Conference on Empirical Methods in Natural Language Processing (EMNLP), 55-62, Philadelphia, PA, 2002. (Acceptance rate: 25%)

Identifying Anaphoric and Non-Anaphoric Noun Phrases to Improve Coreference Resolution.
 Vincent Ng and Claire Cardie.
Proceedings of the 19th International Conference on Computational Linguistics (COLING), 730-736, Taipei, Taiwan, 2002. (Acceptance rate: 40%)

Detecting Discrepancies in Numerical Estimates Using Multidocument Hypertext Summaries.
 Michael White, Claire Cardie, Vincent Ng, and Daryl McCullough.
Proceedings of the Second International Conference on Human Language Technology Research (HLT), San Diego, CA, 2002. (Acceptance rate: 20%)

Multi-document Summarization via Information Extraction.
 Michael White, Tanya Korelsky, Claire Cardie, Vincent Ng, David Pierce, and Kiri Wagstaff.
Proceedings of the First International Conference on Human Language Technology Research (HLT), 263-269, San Diego, CA, 2001. (Acceptance rate: 17%)

Detecting Discrepancies and Improving Intelligibility: Two Preliminary Evaluations of RIPTIDES.
 Michael White, Claire Cardie, Vincent Ng, Kiri Wagstaff, and Daryl McCullough.
Proceedings of the 2001 Document Understanding Conference (DUC), New Orleans, LA, 2001.

Examining the Role of Statistical and Linguistic Knowledge Sources in a General-Knowledge Question-Answering System.
 Claire Cardie, Vincent Ng, David Pierce, and Chris Buckley.
Proceedings of the Sixth Applied Natural Language Processing Conference (ANLP), 180-187, Seattle, WA, 2000. (Acceptance rate: 35%)

Proposals Submitted

Ri: A Knowledge-Rich, Data-Intensive, and Relational Approach to Coreference Resolution.
 Submitted to National Science Foundation, December 2006.
 Time duration: June 2007-May 2010.
 Amount requested: \$449,463.
 Status: pending.

CAREER: Knowledge-rich, Data-Intensive Coreference Resolution.
 Submitted to National Science Foundation, July 2006.
 Time duration: June 2007-May 2012.
 Amount requested: \$519,826.
 Status: declined.

Condensing Information from Multiple Electronic Documents.
 ARP pre-proposal, October 2005.
 With Sanda Harabagiu and Vasileios Hatzivassiloglou.
 Status: declined.

RECONR - Recognition and Extraction of Concepts and Relationships.
 Air Force SBIR proposal, January 2005.
 With Richard Hull, Axontologic, Inc.
 Status: declined.

Selected Talks

Shallow Semantics for Coreference Resolution.
 Twentieth International Joint Conference on Artificial Intelligence, January 2007.

Unsupervised Word Segmentation for Bangla.
Fifth International Conference on Natural Language Processing, January 2007.

Machine Learning for Coreference Resolution: From Local Classification to Global Ranking.
43rd Annual Meeting of the Association for Computational Linguistics, June 2005.

Machine Learning for Noun Phrase Coreference.
Second Annual Education & Research Forum and Advisory Council Review (ACE),
Erik Jonsson School of Engineering and Computer Science, The University of Texas at Dallas, April 2005.

Recent Computational Methods in Reference Resolution.
Guest lecture for UT Dallas's graduate course on Discourse Processing (CS 6321),
September 2004.

Learning Noun Phrase Anaphoricity to Improve Coreference Resolution: Issues in Representation and Optimization.
42nd Annual Meeting of the Association for Computational Linguistics, July 2004.

Improving Machine Learning Approaches to Noun Phrase Coreference Resolution.
—The University of Texas at Dallas Computer Science Colloquium, March 2004.

Machine Learning for Coreference Resolution.
—Cornell University Information Science Open House, November 2003.
—Cornell University AI seminar, October 2003.

Bootstrapping Coreference Classifiers with Multiple Machine Learning Algorithms.
2003 Conference on Empirical Methods in Natural Language Processing, July 2003.

Weakly Supervised Natural Language Learning Without Redundant Views.
Human Language Technology Conference of the North American Chapter of the Association for Computational Linguistics, May 2003.

The EM Algorithm.
—Guest lecture for Cornell's graduate course on Natural Language Processing (CS674), April 2004.
—Guest lecture for Cornell's graduate course on Natural Language Processing (CS674), March 2003.

Identifying Anaphoric and Non-Anaphoric Noun Phrases to Improve Coreference Resolution.
19th International Conference on Computational Linguistics, August 2002.

Improving Machine Learning Approaches to Coreference Resolution.
—40th Annual Meeting of the Association for Computational Linguistics, July 2002.

—Cornell University AI/NLP seminar, February 2002.

Combining Sample Selection and Error-Driven Pruning for Machine Learning of Coreference Rules.
2002 Conference on Empirical Methods in Natural Language Processing, July 2002.

Examining the Role of Statistical and Linguistic Knowledge Sources in a General-Knowledge Question-Answering System.
—Sixth Applied Natural Language Processing Conference, May 2000.
—Cornell University NLP seminar, April 2000.

Question Answering with Type Information.
—Cornell University Cognitive Studies Graduate Research Forum, October 1999.
—Cornell University NLP seminar, October 1999.

A Nipick Specification of IPv6.
Carnegie Mellon University Undergraduate Research Forum, May 1997.

Professional Activities

Program Committee Member
—Joint Annual Meeting of the North American Chapter of the Association for Computational Linguistics and Human Language Technology Conference (NAACL-HLT), 2007.
—Joint Human Language Technology Conference and Annual Meeting of the North American Chapter of the Association for Computational Linguistics (HLT/NAACL), 2006.
—43rd Annual Meeting of the Association for Computational Linguistics (ACL), 2005.
—Student Research Workshop, Human Language Technology Conference of the North American Chapter of the Association for Computational Linguistics (HLT-NAACL), 2003.

Conference Review Panel
—45th Annual Meeting of the Association for Computational Linguistics (ACL), 2007.
—Twentieth International Joint Conference on Artificial Intelligence (IJCAI), 2007.
—21st International Conference on Computational Linguistics and 44th Annual Meeting of the Association for Computational Linguistics (COLING/ACL), 2006.
—2006 Conference on Empirical Methods in Natural Language Processing (EMNLP), 2006.
—Human Language Technology Conference and Conference on Empirical Methods in Natural Language Processing (HLT/EMNLP), 2005.
—Nineteenth International Joint Conference on Artificial Intelligence (IJCAI), 2005.
—AAAI Spring Symposium on Exploring Attitude and Affect in Text: Theory and Applications, 2004.
—Eleventh Conference of the European Chapter of the Association for Computational Linguistics (EACL), 2003.

Journal Referee
Computational Intelligence (2006)
Journal of Artificial Intelligence Research (2006)
Theory and Practice of Logic Programming (2006)

Academic Honors

Member of Phi Beta Kappa and Phi Kappa Phi

Carnegie Mellon University Dean's List: Fall 94, 95; Spring 95, 96, 97
 Recipient of the EDS scholarship, Fall 1996

University Activities
 Member, Computer Science graduate admissions committee, Spring 2005-1006
 Judge, Jonsson School Forum student presentations, Spring 2006
 Chair, Machine Learning Ph.D. qualifying exam, Fall 2005 and Fall 2006.

Current Students
 Ph.D. supervisor, Sajib Dasgupta (computer science).
 M.S. supervisor, Mahbubur Rahman Haque (computer science).

Previous Students
 M.S. supervisor, Rajesh Koduru (computer science), 2005.
 First employment: Yahoo! Inc., Mountain View, CA

Thesis Committees
 Ph.D. proposal committee member, Marian Olteanu (computer science), 2006.
 Ph.D. proposal committee member, Marta Tatu (computer science), 2006.
 M.S. committee member, Cristina Nicolae (computer science), 2006.
 M.S. committee member, Keven Ates (computer science), 2006.
 Ph.D. committee outside chair, Hulusi Ogut (management), 2006.
 M.S. committee member, Abraham Fowler (computer science), 2006.
 M.S. committee member, Muhammad Kapasi (computer science), 2006.
 Ph.D. committee member, Adrian Novischi (computer science), 2005.
 M.S. committee member, Steven Ray (computer science), 2005.
 M.S. committee member, Punit Kulkarni (computer science), 2005.
 Ph.D. committee member, Adriana Badulescu (computer science), 2004.
 M.S. committee member, Marian Olteanu (computer science), 2004.
 M.S. committee member, Arvind Joshi (computer science), 2004.

Courses Taught
 Discrete Math for Computing I (CS 2305): Fall 2004.
 Artificial Intelligence (CS 4365): Spring 2006; Spring 2007.
 Introduction to Machine Learning (CS 4375): Fall 2006.
 Machine Learning (CS 6375): Fall 2005, Fall 2006.

Professional Affiliations
 Member, American Association for Artificial Intelligence (AAAI)
 Member, Association for Computational Linguistics (ACL)
 Member, ACL Special Interest Group for Linguistic Data and Corpus-Based Approaches to NLP (SIGDAT)

NTAFOS, SIMON C.
 Associate Dean of Undergraduate Education
 Director, Office of Student Services
 Erik Jonsson School of Engineering and Computer Science
 Professor
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 The University of Texas at Dallas
 Richardson, TX 75083-0688
 (972) 883-2809
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 web: http://www.utdallas.edu/~ntafos

EDUCATION:
 Ph.D. Electrical Engineering/Computer Science, Northwestern University, June 1979.
 Dissertation: "On Some Graph Theoretic Problems in Program Testing".
 M.S. Electrical Engineering, Northwestern University, 1977.
 Thesis: "On Uniquely Decipherable Codes with Prescribed Compositions".
 B.S. Electrical Engineering, Wilkes College, 1974.

RESEARCH INTERESTS:
 Computational Geometry, Emergency Response Planning, Software Reliability.

EXPERIENCE (Academic):
 1993- Professor, Computer Science Program, University of Texas at Dallas
 1984- Associate Professor, Computer Science Program, University of Texas at
 1993 Dallas
 1979- Assistant Professor, Computer Science Program, University of Texas at
 1984 Dallas
 1978- Visiting Assistant Professor, Department of Electrical Engineering
 1979 and Computer Science, Northwestern University.

EXPERIENCE (Administrative):
 8/06- Director, Office of Student Services
 9/04- Associate Dean of Undergraduate Education
 9/98- Associate Chair, Department of Computer Science, UT-Dallas.
 6/02- ABET Coordinator for BS-SE degree program.
 3/04- ABET Coordinator for the BS-CS degree program.
 9/04
 9/85- Program Head, Computer Science Program, The University of Texas at
 1/87 Dallas

MEMBER:

ACM, ACM SIGACT, ACM SIGSOFT.

ACADEMIC SERVICE:

2004- Council for Undergraduate Education
2004- Core Curriculum Committee
2004-06 Secretary of the Faculty
2003- Academic Council
2003- CS Personnel Review Committee
2002-05 Committee on Qualifications of Academic Personnel (vice Chair)
2002-03 Committee on Qualifications of Academic Personnel
2001-03 Committee on Qualifications of Academic Personnel
2001- PhD Committee - CS (Chair)
2001-02 CS Search Committee
2000-01 CS Search Committee (Chair)
1999-01 Admissions Committee (Chair)
1999-01 EE&CS Personnel Review Committee (elected)
1998-99 Committee on Educational Policy
1998-99 CS Faculty Search Committee (Chair)
1997- Academic Senate
1997-03 CS Software Engineering Committee
1997-98 EE&CS Personnel Review Committee (elected)
1996-98 EE&CS Committee on Teaching Effectiveness
1996-98 CS Graduate Admissions Committee
1994-98 CS Track C Advising Committee
1996-97 CS Search Committee (Chair - senior positions)
1995-97 Committee on Qualifications
1995-96 CS Curriculum Committee
1994-97 CS Software Engineering Committee (Chair)
1994-95 Computer Science Search Committee (Chair)
1994-95 Academic Senate
1994-95 Committee on Effective Teaching
1992-95 Computer Science Graduate Admissions Committee
1992-95 Computer Science Colloquium Committee.
1989-91 Computer Science Faculty Search Committee.
1986-87 Electrical Engineering Faculty Search Committee.
1985-87 Computer Science Ph.D. Student Advisor.
1985-87 Graduate Admissions Committee.
1984-89 Academic Senate.
1980-87 Computer Science Faculty Search Committee.
1980-85 Undergraduate Advisor.
1981-83 Computer Facilities Committee.
1982 Academic Senate.
1981 Faculty Handbook Committee.

PUBLICATIONS:

Books:

Proceedings of ASSET-98 (Editor), IEEE Computer Society Press, 1998.

Journal Publications:

"The Vector String Descriptor as a Tool in the Analysis of Cellular Automata Systems," Mathematical Bioscience, pp. 55-84, 1977 (with J. Butler).
"On Path Cover Problems in Digraphs and Applications to Program Testing," IEEE Trans. on Software Engineering, Vol. S8-5, pp. 520-529, September 1979 (with S. Hakimi).
"On Structured Digraphs in Program Testing," IEEE Trans. on Computers, Vol. C-30, pp. 67-77, January 1981 (with S. Hakimi).
"On the Complexity of Some Coding Problems," IEEE Trans. on Information Theory, Vol. IT-27, pp. 794-796, November 1981 (with S. Hakimi).
"On Legal Path Problems in Digraphs," Information Processing Letters, Vol. 18, pp. 93-98, February 1984 (with H. Ihm).
"An Evaluation of Random Testing," IEEE Trans. on Software Engineering, Vol. SE-10, No. 4, pp. 438-444, July 1984 (with J. Duran).
"On the Computational Complexity of Path Cover Problems," Journal of Computer and System Sciences, Vol. 29, No. 2, pp. 225-242, October 1984 (with T. Gonzalez).
"On Required Element Testing," IEEE Trans. on Software Engineering, Vol. SE-10, No. 6, pp. 795-803, November 1984.
"On Gallery Watchmen in Grids," Information Processing Letters, Vol. 23, No. 2, pp. 99-102, August 1986.
"On Decomposing Polygons into Uniformly Monotone Parts," Information Processing Letters, Vol. 27, pp. 85-89, February 1988. (with R. Liu)
"Optimum Watchman Routes", Information Processing Letters, Vol. 28, pp. 39-44, May 1988. (with W. Chin)
"A Comparison of Some Structural Testing Strategies", IEEE Transactions on Software Engineering, Vol. 14, No. 6, pp. 868-874, June 1988.
"The Robber Route Problem", Information Processing Letters, Vol. 34, pp. 59-63, March 1990.
"Path Planning in the Presence of Vertical Obstacles", IEEE Journal of Robotics and Automation, Vol. 6, No. 5, pp. 31-41, June 1990. (with L. Gewali and I. Pollis).
"Path Planning in 0/1 Weighted Regions with Applications", ORSA Journal of Computing, Vol. 2, No. 3, pp. 153-172, Summer 1990. (with L. Gewali, A. Meng and J. Mitchell).
"Watchman Routes in Simple Polygons", Discrete and Computational Geometry, Vol. 6, No. 1, pp. 9-31, January 1991 (with W. Chin).
"On Partitioning Rectilinear Polygons into Star-Shaped Polygons", Algorithmica, Vol. 6, No. 6, pp. 771-800, 1991 (with R. Liu).

- "Watchman Routes under Limited Visibility", Computational Geometry: Theory and Applications, Vol. 1, No. 3, pp. 149-170, March 1992.
- "The Zoo-keeper Route Problem" (with W. Chin), Information Sciences, Vol. 63, pp. 245-259, 1992. (with W. Chin).
- "On Covering Orthogonal Polygons with Star-Shaped Polygons", Information Sciences, Vol. 65, No. 1, pp. 45-64, Nov. 1992. (with L. Gewali and M. Keil).
- "Optimum Guard Covers and m-Watchman Routes for Histograms", Int'l Journal of Computational Geometry and Applications, Vol. 3, No. 1, pp. 85-105, 1993 (with S. Carlsson and B. Nilsson).
- "On Some Reliability Estimation Problems in Random and Partition Testing", IEEE Transactions on Software Engineering, Vol. 19, No. 7, pp. 687-697, July 1993 (with J. Duran and M. Tsoukalas).
- "Covering Grids and Orthogonal Polygons with Periscope Guards", Computational Geometry: Theory and Applications, Vol. 2, pp. 309-334, 1993 (with L. Gewali).
- "Optimum Placement of Watchmen", Information Sciences, 1993 (with M. Tsoukalas).
- "External Watchman Routes", The Visual Computer, Vol. 10, No. 8, pp. 474-484, 1994 (with L. Gewali).
- "A Greedy Over-the-Cell Channel Router", VLSI Design, Vol. 5, No. 1, pp. 23-36, 1996 (with G. Gudmundsson).
- "Watchman Routes in the Presence of a Pair of Convex Polygons", Information Sciences, Vol. 105, pp. 123-149, 1998 (with L. Gewali).
- "On Random, Partition, and Proportional Partition Testing", IEEE Trans. On Software Engineering, Vol. 27, No. 10, pp. 949-960, Oct. 2001.
- "A Geometric Approach for finding HPD-Credible Sets with Applications", Applied Mathematics for Computation, Vol. 125, pp. 195-207, 2002 (with L. Gewali and A. Singh).
- "Internal, External, and Mixed Visibility Edges of a Polygon", submitted to the Journal of Graphs and Combinatorics, (with J. Bagga, L. Gewali, J. Urrutia)
- Conference Publications:**
- "On Uniquely Decipherable Codes with Given Compositions," Proc. 14th Allerton Conference, pp. 712-721, September 1976 (with S. Hakimi).
- "On the Complexity of Some Minimum Path Cover Problems," Proc. of 11th Southeastern Conference on Combinatorics, Graph Theory and Computing, March 1980, in Congressus Numerantium, Vol. 29, pp. 699-708.
- "A Report on Random Testing," Proc. of 5th International Conference on Software Engineering, pp. 179-183, March 1981 (with J. Duran).
- "On Testing with Required Elements," Proc. COMPSAC-81, pp. 132-139, November 1981.
- "On Finding Legal Paths in the Presence of Impossible Paths," Proc. of

- 13th Southeastern Conference on Combinatorics, Graph Theory and Computing, Feb. 1982, in Congressus Numerantium, Vol. 36, pp. 311-323 (with H. Ihm).
- "Required Element Testing Strategies Based on Data Flow Analysis," Proc. of 6th Int'l Conference on Software Engineering Poster Session, pp. 27-28, September 1982.
- "RETS: Required Element Testing System," Proc. of the Symposium on Application and Assessment of Automated Tools for Software Development, pp. 125-132, November 1983 (with H. Ihm).
- "An Evaluation of Required Element Testing Strategies," Proc. 7th Int'l Conference on Software Engineering, pp. 250-256, March 1984.
- "An Investigation of Stopping Rules for Random Testing," Proc. 18th Hawaii Int'l Conference on System Sciences, pp. 684-691, January 1985 (with J. Duran).
- "On Partitioning Rectilinear Polygons Into Star-Shaped Components," Proc. of 23rd Allerton Conference, pp. 654-663, October 1985 (with R. Liu).
- "A Comparison of Some Structural Testing Strategies," Proc. 19th Hawaii Int'l Conference on System Sciences, pp. 803-811, January 1986.
- "Optimum Watchman Routes," Proc. 2nd Int'l Conference on Computational Geometry, pp. 24-33, June 1986, (with W. Chin).
- "Parallel Tree Techniques and Code Optimization," Proc. of AWOC-86 in Lecture Notes in Computer Science, Vol. 227, pp. 205-216, July 1986 (with E. Dekel and S. Peng).
- "Optimum Zoo-keeper Routes," Proc. of the 19th SouthEastern Conference on Combinatorics, Graph Theory and Computing, Feb. 1987, in Congressus Numerantium, Vol. 58, pp. 257-266 (with W.P. Chin).
- "Compression Trees and Their Applications," Proc. of 1987 Int'l Conference on Parallel Processing, pp. 132-139, August 1987 (with E. Dekel and S. Peng).
- "An Over-the-Cell Router", Proc. of 1987 Allerton Conf., September 1987 pp. 375-376 (with G. Gudmundsson).
- "Problems in Dynamic Path Planning", Proc. of the 20th SouthEastern Conference on Combinatorics, Graph Theory and Computing, Feb. 1988, in Congressus Numerantium, Vol. 73, pp. 19-28 (with A. Meng).
- "Finding Shortest Paths Amidst Vertical Obstacles", Proc. of 22nd Annual Conference on Information Sciences and Systems, pp. 720-725, March 1988. (with L. Gewali and I. Tollis)
- "Path Planning in 0/1 Weighted Regions with Applications", Proc. of 4th ACM Symposium on Computational Geometry, pp. 266-278, June 1988. (with L. Gewali, A. Meng and J. Mitchell)
- "An Optimum Algorithm for Covering a Horizontally Convex Orthogonal Polygon with Orthogonal Star-Shaped Polygons", 1989 Allerton Conference, pp. 584-593, Sept. 1989. (with L. Gewali)

"Covering Polygons with Horizontal Line Guards", Proc. of 21st Southeastern Conference on Combinatorics, Graph Theory and Computing (Feb. 1990) in Congressus Numerantium, Vol. 76, pp. 209-218, 1990. (with L. Gewali)

"Watchman Routes under Limited Visibility" Proc. of 2nd Canadian Conference on Computational Geometry, pp. 89-92, August 1990.

"Minimum Covers for Grids and Orthogonal Polygons by Periscope Guards", Proc. of 2nd Canadian Conference on Computational Geometry, pp. 358-361, August 1990. (with L. Gewali)

"On k Aquarium-Keeper and Zoo-Keeper Routes", Proc. of 22nd Southeastern Conference on Combinatorics, Graph Theory and Computing, pp. 25-32, Feb. 1991 (with M. Tsoukalas).

"On Some Reliability Estimation Problems in Random and Partition Testing", Proc. of Int'l Symposium on Software Reliability Engineering, May 1991, pp. 194-201 (with M. Tsoukalas and J. Duran).

"Optimum Guard Covers and m-Watchman Routes for Restricted Polygons", Proc. of the Workshop on Algorithms and Data Structures, pp. 367-378, Aug. 1991 (with S. Carlsson and B. Nilsson).

"An Approach to Real-Time Flexible Path Planning", Proc. of EURISCON-91, pp. 253-260, 1992 (with A. Mang and M. Tsoukalas).

"An Approach to Real-Time Path Planning for Handling Changing Targets and Unexpected Threats", Proc. of DARPA Workshop on Associate Technology, June 1991, pp. 184-192 (with A. Mang and M. Tsoukalas).

"Optimum Placement of Guards", Proc. of the 3rd Canadian Conference on Computational Geometry, Aug. 1991, pp. 122-125 (with M. Tsoukalas).

"Program Testing: Theory and Practice", International Test Conference, p. 553, Sept. 1992 (position paper for panel on Software Testing).

"Annular Profiles of Polygons with Applications", Proceedings of SPIE - Vision Geometry III, Nov. 1994 (with G. Fang and L. Gewali).

"Watchman Routes in the Presence of a Pair of Convex Polygons", Proc. of 7th Canadian Conference on Computational Geometry, pp. 127-132, Aug. 1995.

"Internal, External, and Mixed Visibility Edges of Polygons", 13th European Conference on Computational Geometry, p. 11 (abstract), March 1997 (with J. Bagga and L. Gewali).

"The Cost of Software Failures", Proc. of IASTED Software Engineering Conference, pp. 53-57, Nov. 1997.

"On Random and Partition Testing", ISSSTA-98, pp. 42-48, March 1998.

"Testing and the Cost of Field Failures", ISSRE-99, pp. 13-14, Nov. 1999.

"Improved Testing Using Failure Cost and Intensity Profiles", Proc. ASSET 2000, pp. 126-130, March 2000 (with V. Benson).

"A high-assurance measurement repository system,"

Proc. of the IEEE Symp. on High-Assurance Systems Engineering (HASE 2000), Albuquerque, NM, Nov. 2000, pp. 265-272 (with F. Bastani, I.-L. Yen, E.D. Harris, R. Morrow, R. Paul).

"Guarding a Terrain by Two Watchtowers", Proc. of the 21st Annual Symposium on Computational Geometry, pp. 346-355, June 2005, (with Pankaj K. Agarwal, Sergey Bereg, Ovidiu Daescu, Haim Kaplan, Binhai Zhu).

"The Two Guard Art Gallery Problem", Proc. of the 2006 Canadian Computational Geometry Conference, August 2006 (with Junqiang Zhou).

Ph.D. DISSERTATIONS SUPERVISED:

Robin Liu: "On Decomposing Polygons Into Simpler Parts", December 1985.

Wei-Pang Chin: "Algorithms for Watchman Route Problems", August 1987.

Laxmi Gewali: "Problems in Path Planning and Visibility", August 1989.

Gudni Gudmundsson: "On Problems in Over-the-Cell Routing", Dec. 1992.

Markos Tsoukalas: "On Mission Planning and Reliability Estimation Problems", August 1993.

Viadlena Benson: "Remote Approach to Database Content Observation", Dec. 2001 (with B. Raghavachari)

GRANTS:

[6/80-5/82] "A Study of Program Testing and Software Reliability Estimation," NSF Grant No. MCS-8003322, with J. Duran and J. Wiorowski (\$95,000).

[9/80-8/81] "Required Element Testing," UTD Organized Research Award (\$4,113).

[6/82-8/85] "Required Element Testing," NSF Grant No. MCS-8202593 (\$52,500).

[9/82-8/83] "The Complexity of Path Cover and Related Problems," UTD Organized Research Award (\$7,116).

[9/85-8/86] "Optimum Routing for Mobile Robots," UTD Org. Research, (\$7,758).

[5/86-8/86] "Analysis and Improvement of the Operation of the Dump and Restore Process of the DMS Switching System," Northern Telecom Grant, with J. Jou (\$20,000).

[6/86-5/87] "Path Planning Algorithms," TI Grant, with J. Leung (\$20,409).

[6/86-5/87] "Practical Algorithms for IC Layout," Texas Instruments Inc., with F. Makedon and Hal Sudborough (\$34,416).

- [1/87-12/87] "Development of a Cost-Effective Testing Methodology and Environment for Concurrent/Vectorized Programs," Cray Research Inc., with H.L. Sung (\$49,471).
- [6/87-5/88] "Path Planning in the Presence of Obstacles and Threats," Texas Instruments, Inc. (\$24,900).
- [9/88-8/89] "Problems In Path Planning", Texas Instruments (\$25,000).
- [1/90-12/90] "Path Planning and Visibility Problems", Texas Instruments, Inc. (\$23,750).
- [7/90-5/92] "Path Planning and Limited Visibility Problems", National Science Foundation (\$33,889).
- [1/91-12/91] "Dynamic Path Planning", Texas Instruments, Inc. (\$23,575).
- [6/94-12/94] "Formulation and Evaluation of Software Testing Methodologies", Electrospace, Inc., (\$24,731).
- [1/95-12/95] "Formulation and Evaluation of Software Testing Methodologies", Electrospace, Inc., (\$37,553).
- [1/98-8/00] "Dealing with the Cost of Field Software Failures", Texas Advanced Technology Program, (\$141,174).
- [1/99-12/99] "Assessment of the Impact of Software Architecture on Software Quality", Alcatel, with F. Bastani and L. Chung (\$25,000).
- [1/99-12/99] "Managing Complexity in the Development of Telecom Software", Alcatel, with F. Bastani and L. Chung (\$25,000).
- [2/99-12/99] "TL 9000 Metrics Repository System", QUEST Forum, with F. Bastani, B. Chen, L. Chung, D. Harris, I. Yen (\$661,000).
- [6/2000-5/02] "Embedded Software Center", Alcatel and Texas Instruments, with F. Bastani and others, \$600,000.
- [1/2000-12/2002] "TL 9000 Metrics Repository System", continuing support from the Quest Forum, with D. Harris, F. Bastani and others, \$1.6M total).
- [3/2002-8/02] "Performance and Quality Studies in Telecommunications Products for SBC", SBC, with D. Harris and G. Dattatreya (\$38,737).
- [1/2003-12/2003] "TL 9000 Measurement Repository System", Quest Forum, with D. Harris et al, (\$421,965).
- [1/2004-12/2004] "TL 9000 MRS", QUEST Forum, with D. Harris et al, (\$500,000).
- [9/2004-8/2008] "Training Students in Software Engineering for the High-Tech Workforce, NSF-CSEMS, with K. Zhang, G. Gupta, D. Huynh, et al, (\$385,000).
- [8/2005-8/2007] "UTD ECS-TETC Undergraduate Expansion Program", Texas Higher Education Coordinating Board, Simeon Ntafos (PI) with John Fonseca, Kang Zhang, \$156,007.

- [8/2006-9/2009] "Training Doctoral Students for Teaching and Research Careers in Computer Science", Dept. of Education, with G. Gupta et. al. (\$168,896).
- [8/2006-8-2008] "Jonsson School Undergraduate Scholars Program", Texas Higher Education Coordinating Board, Simeon Ntafos (PI) with D.T. Huynh, Phase I \$95,000; Phase II - \$195,000

PROFESSIONAL SERVICE:

Panelist: International Test Conference, 1992
 Program Committee Chair - ASSET 98
 Program Committee - COMPSAC 99
 General Chair - ASSET 2000

REFEREN:

Computer Journal
 National Science Foundation
 7th Int'l Conference on Software Engineering
 8th Int'l Conference on Software Engineering
 19th Hawaii Int'l Conference on System Sciences
 19th Hawaii Int'l Conference on System Sciences
 1988 Int'l Conference on Parallel Processing
 IEEE Transactions on Software Engineering
 IEEE Transactions on Computers
 IEEE Software
 Journal of Parallel and Distributed Computing
 IEEE Transactions on Reliability
 ACM Transactions on Graphics
 Algorithmica
 Journal of Discrete and Computational Geometry
 SIAM Journal of Computing
 1988 Pheonix Conference
 Louisiana Board of Regents
 Information Processing Letters
 Computational Geometry: Theory and Applications
 The Visual Computer
 SIGSOFT-91
 IEEE-Computer
 UNLV Computer Science Conference
 Proceedings of the IEEE
 Int'l Journal of Computational Geometry and Applications
 International Test Conference - 1993
 IEEE Transactions on CAD
 Information Sciences
 Information and Computation
 IEEE Transactions on Robotics and Automation

Ivor P. Page
Associate Professor in Computer Science.

February 2007

BSc (Honors) in E.E. 1968 Brunel University, UK.
Ph.D in Computer Science 1979 Brunel University, UK.

Employment History

Research and design engineer with ICL R&D laboratory, UK. 1968-1970
Research engineer for Elliott Automation Radar Systems, UK. 1970-1971
Lecturer in Computer Science with tenure, Brunel University, UK 1971-1981
Assistant Professor in Computer Science, UTD 1981-1987
Associate Professor in Computer Science, UTD 1987-
Associate Dean of Undergraduate Studies, UTD Jan 1998-Sept 1998
Director of Collegium Five Honors Program, UTD Jan 1998-Sept 1998
Interim Program Head, Computer Science, UTD Oct 1995-April 1997
Associate Program Head, Computer Science, UTD April 1997-Sept 1998
Associate Dean, EE&CS Sept 1998- Sept 2004
College Master, EE&CS Sept 1998- Sept 2004

Publications

Published papers in top journals, conferences and workshops.

Other Associations

Membership of the academic advisory panel for the Faculty of Science and Technology at the University of Gezire in Sudan. I visited The Sudan in January 1979 and was advisor for course design, industrial training programs, faculty selection, buildings architecture, and computer and equipment procurement in the department of Computer Science and Statistics. 1978-1981

Joint research project on signal processing in connection with computer controlled Ionospheric Sounding, with British Antarctic Survey, Cambridge, England, and with the Space Environment Lab, NOAA, Boulder, Colorado. I spent four weeks in August 1979 and again in January 1980 and a further 8 weeks in 1980 working in the NOAA laboratory on software for use with the fast parallel front- signal processor developed in Boulder.

Journal Referee Activities

IEEE Transactions on Acoustics, Speech and Signal Processing, British Computer Society Journal, IEEE Transactions on Computer Systems, IEEE Transactions on Data Base Systems, IEEE Transactions on Parallel and Distributed Systems, Distributed Algorithms.

Grants

NOAA grants to cover visiting research scholarships to Boulder Colorado as outlined above. NA50RAA03200

United Nations ITU visiting expert award for two six-week trips to New Delhi to teach advanced courses on digital signal processing and do research with Indian Posts and Telecommunications. IND-72-037-11-05-N and IND-72-037-11-05-E.

Texas state award for "Analysis of Placement Policies", support for a research assistant for 9 months. A6495-4K-J. 1980-1981

Texas state award for "Architectures for Expert Systems", to support a research assistant for 9 months. 1983-1984

Award of a TI-PC from Texas Instruments, worth \$6000 (approx), to develop graphics TI-SCHEME language. 1985

Grant of \$16,562 from Texas Instruments to work on parallel computer architectures for computer graphics systems. Includes RA support for 3 months. 1987

Grant of \$32,480 from Texas Instruments to continue work on parallel computer architectures for computer graphics systems. Includes RA support for 1 year. 1988

Grant of \$26,000 from Bell Northern Research for research into feature arbitration and processing in the Intelligent Network. 1991

PI for a \$350,000 NSF grant proposal for a vBNS connection from UT Dallas to the Gigapop in Houston.

Teaching Experience

With more than 36 years of university teaching experience, mainly at the graduate level, there is little doubt that I am an excellent teacher in a wide range of subjects from math, computer science and EE, and including digital signal processing, VLSI CMOS design, and computer architecture. Numerous "teaching effectiveness" surveys from classes at UTD, and TI are on record confirming my skill, knowledge and enthusiasm as a teacher.

Industrial Courses

I have presented over 30 advanced and often specialized courses, each of duration greater than 30 hours, in major companies in Dallas and the UK. The subjects cover a wide range, including, digital signal processing, computer graphics, VLSI CMOS systems design, Vector Field Theory and Electromagnetic Compatibility. Companies include Perot Systems, Optical Data Systems, Alcatel, TI, Ericsson, and E-systems in Richardson, and Sperry Gyroscope, Marconi, GEC, IIT, Perkin Elmer and EMI in the UK.

Research Students Supervised

Mike Goss: High speed algorithms and architectures for realism in computer generated images. Graduated with PhD.

Hal Badt: Use of coherence in computer graphics animation of ray traced images to speed computation, both for camera and object motion. Graduated with PhD.

Eric Chern: Mutual Exclusion and Resource Sharing in distributed systems. Graduated with PhD.

Administrative Experience

Interim Program Head, Computer Science, UTD, Oct 1995 - April 1997

Acting chair of Computer Science department at Brunel university during the Summer of 1980.

Associate Dean of Undergraduate Studies and Director of Collegium Five Honors Program at U.T. Dallas, January 1998 - Sept 1998

Associate Dean for Undergraduate Education in ECS at U.T. Dallas, Sept 1998 - Sept 2004

Was chair, now member, of the Committee on Faculty Standing and Conduct.

I was Speaker of the Faculty Senate for three years, past Chair of the Committee on Committees, member of Council, and long term member and Chair of the UT System Faculty Advisory Council.

I was a member of the Chancellor's committee on the Advancement of Women.

Past chair of the student life committee, past chair of many faculty search committees.

Member of Student Fee Committee.

Previously a member of the university committee on qualifications and promotions (1988-1990), long range computer facilities planning, and committee on science and math education. Chair and committee member for many PhD examinations. Chair and member of several ad-hoc committees for faculty under review for promotion and tenure.

Was co-chair of the Texas Higher Education Coordinating Board Advisory Committee on the Field of Study for Computer Science (2002/2003). The FOS is now law.

Was member, and contributor to the final report, of the IEEE panel to construct a recommended curriculum for Computer Engineering.

Coach for UT Dallas programming teams over the past 6 years. Requires planning, running, and judging about 10 local four-hour contests at UTD each year, to prepare teams for the Regional Contests in November. We have placed 2nd, 3rd, 4th, 7th, and finally 1st in the Three-State Regional Contests. This year, for the first time, we will compete in the World Finals in Tokyo in March.

Selected Journal Publications

I. Page. Optimal fit of arbitrary sized segments. BCS Computer Journal, Jan 1982.

I. Page, R.T. Wood. Empirical analysis of a moving head disc model with two heads separated by a fixed number of tracks. BCS Computer Journal, Nov 1981.

I. Page, R.T. Wood. A shaded picture scanning attachment for incremental plotters. BCS Computer Journal, Aug 1981.

I. Page. Analysis of a cyclic placement scheme. BCS Computer Journal, Feb 1984.

I. Page, J. Hagins. Improving the performance of buddy systems. IEEE Transactions on Computers, May 1986.

I. Page, R.T. Jacob. The solution of mutual exclusion problems which can be described graphically. BCS Computer Journal, Spring 1989.

I. Page, R.T. Jacob. Synthesis of mutual exclusion problems based on semaphores. IEEE Transactions on Software Engineering, May 1989.

S.E. Chern, I. Page. An efficient deadlock and starvation free semaphore solution to the graphical mutual exclusion problem. BCS Computer Journal.

I. Page, J. Niehaus. The FLEX Architecture, a high speed graphics processor. Computer Architecture News, 16.4, Sept 1988.

I. Page, R.T. Jacob, S.E. Chern. Fast algorithms for distributed resource allocation, IEEE Transactions on Parallel and Distributed Systems, 4.2, Jan 1993.

I. Page, M. Goss. Normal vector generation for sampled data using Fourier Filtering. Journal of Visualization and Computer Animation, 4, 1993.

I. Page, J. Voerasty, On the Tower of Hanoi Problem with Multiple Spare Pegs, International Journal of computer Mathematics, 52.1, 1994.

Selected Technical Reports

I. Page, J. Hagins. Improving the performance of buddy systems. UTDCS-1-84.

I. Page, R.T. Jacob. The solution of mutual exclusion problems which can be described graphically. UTDCS-12-85.

- I. Page, J. Niehaus. Applications note for the ACT8847 floating point processor. Texas Instruments NPT internal report, 1987
- H. Badt, I. Page. A reprojection algorithm for ray-tracing multiple images with slightly different viewpoints. UTDCS-23-87.
- I. Page, Jeff Niehaus. The design of high speed graphics processor. UTDCS-8-88.
- I. Page. A fast clipping algorithm for N dimensions. UTDCS-9-88.
- I. Page, S.E. Chern. An efficient deadlock and starvation free semaphore solution to the graphical mutual exclusion problem. UTDCS-10-88.
- I. Page, J. Niehaus, The FLEX architecture, a high speed graphics processor. UTDCS-17-88.
- M. Goss, I. Page. A real time particle system for display of ship wakes. UTDCS-19-88.
- S.E. Chern, I. Page. Solutions for generalized mutual exclusion in a distributed system. UTDCS-1-89.
- I. Page, R.T. Jacob, S.E. Chern. Algorithms for generalized mutual exclusion having minimal length waiting chains. UTDCS-3-89.
- S.E. Chern, I. Page. An algorithm for resource allocation with minimal waiting time. UTDCS-10-89.
- S.E. Chern, I. Page, R.T. Jacob. A solution to the drinking philosophers problem having a minimal number of forks. UTDCS-15-89.
- I. Page, S.E. Chern, R.T. Jacob. Algorithms for the drinking philosophers problem having minimal length waiting chains. UTDCS-25-89.
- I. Page, S.E. Chern, R.T. Jacob. Optimal Algorithms for distributed resource allocation, UTDCS-35-90
- I. Page, M. Goss. Normal vector generation for sampled data using Fourier Filtering. UTDCS-37-90
- I. Page, K. Basu. Implementation of features in the Intelligent Network. Internal Report, BNR Richardson, 1991.
- I. Page, M. Scoggins. Spanning tree maintenance by grafting. Technical report, UTDCS-6-92.
- I. Page, J. Veerasamy, On the tower of Hanoi problem with multiple spare pegs. Technical report UTDCS-6-93.
- I. Page, J. Veerasamy, M. Scoggins, The tower of Hanoi problem with illegal initial configurations. Technical report UTDCS-8-93.

Selected Conference Presentations

- I. Page. A hierarchical filing system based on a high speed drum. Systems Software Workshop, Institute of Computer Science, London, 1972.
- I. Page. Use of instruction set simulators and emulators in undergraduate teaching. Software Workshop. Liverpool University, 1973.
- I. Page, P. Munaster. Improving the performance of dynamic storage allocation through complex address mapping. ACM 10th Annual computer science conference in Indianapolis, February 1982.

- I. Page, R. Jacob. Optimal synthesis of mutual exclusion solutions, or why the dining philosophers problem is hard. ACM Southwest regional conference in Lafayette, LA, Nov 1987.
- I. Page, S.E. Chern. Solutions for generalized mutual exclusion in a distributed system. First IEEE symposium on parallel distributed processing, Dallas TX, 1989.
- I. Page, S.E. Chern, R.T. Jacob. Variations on the Drinking Philosophers Algorithms. Second IEEE symposium on parallel distributed processing, Dallas TX, 1990.
- I. Page, T.J. Bannon, Group: A distributed group specification and management service. UKUUG, Summer 1990, London, UK.
- E.B. Weidman, I. Page, W.J. Pervin. Explicit dynamic mutual exclusion algorithm. Third IEEE symposium on parallel distributed processing, Dallas TX, Dec. 1991, 142-149.
- I. Page, M. Scoggins, Spanning tree maintenance by grafting, Ninth International Conference on Systems Engineering, Las Vegas, Nevada, July 1993.

A Novel

Written with a co-author, "The Price of Treachery", 140,000 words, is in review for publication. At least four more novels have been researched and planned. They should appear at the rate of about one every other year.

B. PRABHAKARAN

Associate Professor
Department of Computer science
University of Texas at Dallas
Richardson, TX 75083
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Phone (Work) +1-972 883 4680
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EDUCATION

1. **Doctor of Philosophy**, Department of Computer Science & Engineering, Indian Institute of Technology, Chennai, (formerly, Madras) - 600 036, INDIA, July 1995.

Dissertation Title : *Formal Models and Protocols For Distributed Orchestrated Presentation.*

Dissertation Objective : The dissertation focuses on characterization of the functional and performance behavior of a distributed orchestrated multimedia presentation. The functional behavior is characterized by the synchronization characteristics and the performance behavior by the network traffic generated by the application. (**Advisor :** Prof S. V. Raghavan).

2. **Master of Science**, Department of Computer Science & Engineering, Indian Institute of Technology, Chennai, (formerly, Madras) - 600 036, INDIA, July 1990.

3. **Bachelor of Engineering**, Electronics & Communication, Madurai- Kamaraj University, August 1986.

PROFESSIONAL EXPERIENCE

1. Associate Professor, Department of Computer Science, University of Texas at Dallas, Richardson, TX 75083-0688, USA. From September 2004.
2. Assistant Professor, Department of Computer Science, University of Texas at Dallas, Richardson, TX 75083-0688, USA. January 2001 - August 2004.
3. Assistant Professor, School of Computing, National University of Singapore, Singapore 117543. Period: September 1997 - June 2001.
4. Research Associate, Department of Computer Science, University of Maryland, College Park, MD 20742, USA, September 1995 - September 1997.
5. Scientific Officer, Department of Computer Science & Engineering, Indian Institute of Technology, Madras - 600 036, INDIA, December 1989 - September 1996.
6. Project Officer, Project ERNET, Department of Computer Science & Engineering, Indian Institute of Technology, Madras - 600 036, INDIA, March 1987 - December 1989.

PROFESSIONAL EXPERIENCE: Joint & Visiting Appointments

1. Faculty, Telecom Engineering Program, School of Engineering & Computer Science, University of Texas at Dallas, 2002 - present.
2. Faculty, Institute for Interactive Arts & Engineering, University of Texas at Dallas, 2002 - present.
3. Consultant, NEC USA C&C Research Labs, San Jose, CA, July - December 2001.
4. Visiting Assistant Professor, Department of Computer Science, University of Texas at Dallas, USA, August - December 2000.
5. United Nations Fellow, Department of Electrical Engineering & Computer Science (EECS), University of California, Berkeley, USA, Fall 1989.

PROFESSIONAL RECOGNITION & HONORS

1. Recipient, US National Science Foundation (NSF) CAREER Award, 2003. Funding: \$400,000 from September 1, 2003 - August 31, 2008.

Research Activities

I. Research Publications

A. Refereed Journals

1. "Motion Stream Segmentation and Recognition by Classification", Chuanjun Li, P. R. Kulkarni and B. Prabhakaran, *International Journal of Multimedia Tools and Applications (IJTAP)*, Springer, accepted.
2. "Partial Fuzzy Query Resolution for Animation Authoring", Phani S Kotharu and B. Prabhakaran, to appear in the *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMCCAP)*, Vol.4 Issue 2, May 2008.
3. "Segmentation and Recognition of Motion Streams by Similarity Search", Chuanjun Li, S. Q. Zheng and B. Prabhakaran, to appear in the *ACM Transactions on Multimedia Computing, Communications and Applications (ACM TOMCCAP)*, Vol. 3(3), August 2007.
4. "Animation Toolkit Based on Database Approach for Reusing Motions and Models", Akanksha, Z. Huang, B. Prabhakaran, and C.R. Ruiz, *Multimedia Tools and Applications*, Springer, Volume 32, Number 3 / March, 2007, pp. 293-327.
5. "Middleware for Streaming 3D Progressive Meshes over Lossy Networks", Hui Li, Ming Li, B. Prabhakaran, *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMCCAP)*, Vol. 2, Issue 4, pp. 282-317, November 2006.
6. "Indexing of Motion Capture Data for Efficient and Fast Similarity Search", Chuanjun Li and B. Prabhakaran, *Journal of Computers (JCP)*, Academy Publisher, Vol. 1(3), pp. 35-42, June 2006.
7. "End-to-end QoS Framework for Heterogeneous Wired-cum-Wireless Networks", Ming Li, Hua Zhu, Imrich Chlamtac, B. Prabhakaran, accepted for publication in *ACM/Springer Wireless Networks (WINET)*, Volume 12, Number 4, August 2006, pp. 439-450.
8. "Real-time Classification of Variable Length Multi-attribute Motion Data", Chuanjun Li, Latifur Khan and B. Prabhakaran, accepted for publication in *Knowledge and Information Systems: An International Journal (KAIS)*, Springer, Vol.10, No. 2, pp. 163-183, August 2006.
9. "MAC Layer Admission Control and Priority Re-allocation for Handling QoS Guarantees in Non-cooperative Wireless LANs", Ming Li, and B. Prabhakaran, accepted for publication in *ACM/Springer Mobile Networks and Applications (MONET)*, Special issue on Non-cooperative Computing in Wireless Networks, Vol. 10, No. 6, pp. 947-959, December 2005.
10. "Flexible Disk Scheduling Strategies for Multimedia Presentation Servers", S. Emilda, L. Jacob, O. Daescu, and B. Prabhakaran, accepted for publication in *Multimedia Tools and Applications*, Kluwer Academic Publishers, Volume 26, Number 1, pp. 81-99, February 2005.

11. "Survey of Quality of Service in IEEE 802.11 Networks", Hua Zhu, Ming Li, Imrich Chlamtac, and B. Prabhakaran, *IEEE Wireless Communication*, Volume 11, Issue 4, August 2004, pp. 6 - 14.
12. {*Author list in alphabetical order*}
"Application-layer Protocol for Collaborative Multimedia Presentations", E. Hwang and B. Prabhakaran, *Multimedia Tools and Applications Journal*, Kluwer Academic Publishers, Volume 21, Issue 2, pp. 103-123, November 2003.
13. {*Author list in alphabetical order*}
"Unified Read Requests", E. Hwang and B. Prabhakaran, *Multimedia Tools and Applications Journal*, Kluwer Academic Publishers, Volume 20, Number 3, pp. 203-224, August 2003.
14. {*Author list in alphabetical order*}
"Experiences With an Object-level Scalable Web Framework", B. Prabhakaran, Yuguang Tu, and Yin Wu, *Journal of Network and Computer Applications*, Academic Press, Vol. 26, Issue 2, pp. 163-196, April 2003.
15. {*Author list in alphabetical order*}
"Visualizing Animation Databases", Akanksha, Huang Z., Prabhakaran B. and Ruiz, Jr. C. R., *International Journal of Software Engineering and Knowledge Engineering (IUSEKE)*, Vol. 13, No. 1, pp. 1-25, February 2003.
16. {*Author list in alphabetical order*}
"Presentation Planning For Distributed Video Systems", E. Hwang, B. Prabhakaran, and V.S. Subrahmanian, *IEEE Transactions on Knowledge and Data Engineering*, Vol. 14, No. 5, pp. 1059-1078, September/October 2002.
17. "Multimedia Information Delivery Over Wireless Channels", B. Prabhakaran, *Multimedia Tools and Applications Journal*, Kluwer Academic Publishers, Vol. 15, No. 2, pp. 115-124, November 2001.
18. "Adaptive Multimedia Presentation Strategies", B. Prabhakaran, *Multimedia Tools and Applications Journal*, Kluwer Academic Publishers, Vol. 12, No. 2-3, pp. 281-298, November 2000.
19. {*Author list in alphabetical order*}
"Retrieval Scheduling Algorithm For Collaborative Multimedia Presentations", P. Bai, B. Prabhakaran, and A. Srinivasan, *ACM/Springer-Verlag Multimedia Systems Journal*, Vol. 8, No. 2, pp. 146-155, March 2000.
20. "Collaborative Multimedia Presentations in Mobile Environments", B. Prabhakaran, *Multimedia Tools and Applications Journal*, Kluwer Academic Publishers, Vol. 9, No. 1, pp. 95-109, July 1999.

21. {Author list in alphabetical order}
"Collaborative Multimedia Documents: Authoring and Presentation", K.S. Candan, B. Prabhakaran, and V.S. Subrahmanian, *International Journal of Intelligent Information Systems*, Vol. 13, No. 12, pp. 1059-1111, 1998.
 22. {Author list in alphabetical order}
"Retrieval Schedules Based on Resource Availability and Flexible Presentation Specifications", K.S. Candan, B. Prabhakaran and V.S. Subrahmanian, *ACM/Springer-Verlag Multimedia Systems Journal*, Vol. 6, No. 4, pp. 232-250, July 1998.
 23. "Synchronization Representation and Traffic Source Modeling in Orchestrated Presentation", S.V. Raghavan, B. Prabhakaran and Satish K. Tripathi, *IEEE Journal on Selected Areas in Communication*, special issue on Multimedia Synchronization, Vol. 14, No. 1, pp. 104-113, January 1996.
 24. "Handling QoS Negotiations in Orchestrated Multimedia Presentations", S.V. Raghavan, B. Prabhakaran, and Satish K. Tripathi, *Journal of High Speed Networks*, Vol. 5, No. 3, pp. 277-292, 1996.
 25. "Synchronization Models For Multimedia Presentation With User Participation", B. Prabhakaran and S.V. Raghavan, *ACM/Springer-Verlag Multimedia Systems*, Vol. 2, No. 2, pp. 53-62, August 1994.
- Guest Editorials in Journals:**
26. "Multimedia Authoring & Presentation Techniques", B. Prabhakara, ACM/Springer Multimedia Systems Journal, Volume 8, Number 3 / October, 2000, pp. 157.
 27. "Techniques for multimedia Presentation", B. Prabhakaran, Multimedia Tools and Applications (MTAP), Volume 12, Numbers 2-3 / November, 2000, pp. 107-108.
 28. "Mobile Computing Environments for Multimedia Systems", B. Prabhakaran and M. Kavehrad, Multimedia Tools and Applications (MTAP), Volume 9, Number 1 / July, 1999, pp. 1-2.
- B. Books and Chapters**
1. Author of book *Multimedia Database Management Systems*, Kluwer Academic Publishers, Boston, 1996.
 2. Edited Book: *Mobile Computing Environments for Multimedia Systems*, Kluwer Academic Publishers. Editors: B. Prabhakaran and M. Kavehrad.
 3. Author of a chapter on *Multimedia Synchronization in Design and Applications of Multimedia Systems*, Kluwer Academic Publishers. Editor : Prof Borko Furth.
 4. Author of a chapter on *Multimedia Synchronization in Handbook of Multimedia Systems*, CRC Press, Florida.

5. Author of a chapter on *Temporal Models and Their Applications in Multimedia Information Retrieval* in the edited book *Design and Management of Multimedia Information Systems: Opportunities and Challenges*, Idea Group Publishing, Hershey, USA, 2001.
 6. Author of a chapter on *Animation Databases*, in the edited book *Handbook of Video Databases*, pp. 417-440, CRC Press, Florida in 2003.
 7. Middleware for Streaming 3D Progressive Meshes Over Lossy Networks, H. Li and B. Prabhakaran, Chapter 33, *Encyclopedia of Multimedia*, Springer, pp. 409-416, 2005.
 8. "Feature Selection for Classification of Variable length Multi-attribute Motions, Chuanjun Li, Laifur Khan and B. Prabhakaran, chapter 7, *Multimedia Data Mining and Knowledge Discovery*, V. A. Petrushin and L. Khan, eds., Springer, pp. 129-152, 2007, ISBN: 978-1-84628-436-6.
 9. "Multimedia Databases", B. Thuraisingham, L. Khan, and B. Prabhakaran, in *Encyclopedia of Multimedia*, CRC Press.
- Short Articles:**
10. "Compressed progressive meshes", H. Li and B. Prabhakaran, Chapter 33, *Encyclopedia of Multimedia*, Springer, pp. 84-85, 2005.
 11. "Progressive Forest split", H. Li and B. Prabhakaran, Chapter 33, *Encyclopedia of Multimedia*, Springer, pp. 714-715, 2005.
 12. "Valence driven conquest", H. Li and B. Prabhakaran, Chapter 33, *Encyclopedia of Multimedia*, Springer, pp. 857-858, 2005.
- C. Refereed Conference Publications**
1. "Integration of Motion Capture and EMG data for Classifying the Human Motions", Gaurav N. Pradhan, Navzer Engineer, Mihai Nadin, Balakrishnan Prabhakaran, to appear in Proceedings of International Workshop on "Ambient Intelligence, Media, and Sensing (AIMS) 2007, (held along with International Conference on Data Engineering (ICDE), April 20, 2007, Istanbul, Turkey.
 2. "Data Hiding based Compression Mechanism for 3D Models", Hui Li, Parag Agarwal, Balakrishnan Prabhakaran, to appear in IEEE Data Compression Conference 2007 (DCC 2007).
 3. "Shear Invariant 3D Model Retrieval", Sagar Naik and B. Prabhakaran Proceedings of International Workshop on Vision Geometry XV, edited by Longin Jan Latecki, David M. Mount, Angela Y. Wu, Proceedings of SPIE-IS&T Electronic Imaging, SPIE Vol. 6499, 64990A, January 2007.

4. "Hierarchical Indexing Structure for 3D Human Motions", Gaurav N. Pradhan, Chuanjun Li, Balakrishnan Prabhakaran, Proceedings of International Conference on Multimedia Modeling Conference (MMM) 2007", pg. 386-396, January 9-12, Singapore.
5. "Tamper Proofing of 3D motion Data Streams", Parag Agarwal, Balakrishnan Prabhakaran, Proceedings of 13th International Multimedia Modeling Conference 2007 (MMM 2007), Singapore, LNCS 4351 (Part 1) pp. 731-740, January 2007.
6. "Robust Blind Watermarking Mechanism for Motion Data Streams", Parag Agarwal, Ketaki Adi, Balakrishnan Prabhakaran, Proceedings of ACM Multimedia and Security Workshop, Geneva, Switzerland, September 26-27, 2006, pp. 230 - 235.
7. "SVD-Based Tamper Proofing Of Multi-Attribute Motion Data", Parag Agarwal, Ketaki Adi, Balakrishnan Prabhakaran, Proc. of The 12th International conference on Distributed Multimedia Systems (DMS), Grand Canyon, August 2006, pp. 46-52.
8. "Uncertainty: An Extra Layer of Security for Unauthorized Traffic based Web Services", Parag Agarwal, Balakrishnan Prabhakaran, Bhavani Thuraisingham, Proc. of The 12th International conference on Distributed Multimedia Systems (DMS), Grand Canyon, August 2006, pp. 52 - 58
9. "Motion Stream Segmentation and Recognition by Classification", Chuanjun Li, P. R. Kulkarni and B. Prabhakaran, *Proceedings of the 31st IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2006)*, pp. V-537- V-540, May 2006.
10. "A Novel Indexing Approach for Efficient and Fast Similarity Search of Captured Motions", Chuanjun Li and B. Prabhakaran, *Proceedings of the 10th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2006)*, pp. 689-698, April 2006.
11. "On Supporting Reliable QoS in Multi-hop Multi-rate Mobile Ad Hoc Networks", Ming Li, B. Prabhakaran, Best Student Paper Award, *Proceedings of the First IEEE International Workshop on Next Generation Wireless Networks (WoNGen'05)*, Goa, India, Dec. 18-21, 2005.
12. "A Similarity Measure for Motion Stream Segmentation and Recognition", Chuanjun Li and B. Prabhakaran, *Proceedings of the Sixth International Workshop on Multimedia Data Mining (MDM/KDD)*, Chicago, IL USA, pp. 89-94, August 2005.
13. "Similarity Measure for Multi-Attribute Data", Chuanjun Li, B. Prabhakaran and S.Q. Zheng, *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2005)*, Philadelphia, PA USA, pp. 1149 - 1152, March 2005.
14. "Indexing of Variable Length Multi-Attribute Motion Data", Chuanjun Li, Gaurav Pradhan, S.Q. Zheng and B. Prabhakaran, *Proceedings of the Second ACM International Workshop on Multimedia Databases (ACM - MIMDB 2004)*, Washington D.C., USA, pp. 75-84, November 8-13, 2004.

15. "Segmentation and Recognition of Multi-Attribute Motion Sequences", Chuanjun Li, Peng Zhai, S. Q. Zheng and B. Prabhakaran, *Proceedings of the ACM Multimedia Conference (ACM Multimedia 2004)*, New York, NY USA, pp. 836-843, October 10-16, 2004.
16. "End-to-end Framework for QoS Guarantee in Heterogeneous Wired-cum-Wireless Networks", Ming Li, H. Zhu, S. Sathiyamurthy, I. Chlamtac, and B. Prabhakaran, *Proceedings of the First International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine'04)*, pp. 140-147, Dallas, Oct. 18-20, 2004.
17. "Smart Decision Module for Streaming 3D Meshes Over Lossy Networks", H. Li and B. Prabhakaran, *Proceedings of the Tenth International Conference on Distributed Multimedia Systems (DMS 2004)*, San Jose, pp. 275-278, September 2004.
18. "Real-time Classification of Multivariate Motion Data Using Support Vector Machines (SVN)", Chuanjun Li, Punit R. Kulkarni, Li Liu, B. Prabhakaran and Latifur Khan, *Proceedings of the Fifth International Workshop on Multimedia Data Mining (MDM/KDD 2004)*, Seattle, WA, USA, pp. 1-7, August 24-30, 2004.
19. "A Dynamic Priority Re-allocation scheme for Quality of Service in IEEE 802.11e WLANs", Ming Li and B. Prabhakaran, Proceedings of Multimedia Computing and Networking (MMCN 2004), Santa Clara, January 2004.
20. "Mobile Tracking and Resource Reservation Scheme for Cellular Networks" Subbiah Sheenbagaraman, S. Venkatesan, B. Prabhakaran, IEEE Semiannual Vehicular technology Conference, Orlando, FL, October 2003. (CD-ROM Proceedings, no page numbers).
21. "On Flow Reservation and Admission Control for Distributed Scheduling Strategies in IEEE802.11 Wireless LAN", Ming Li, B. Prabhakaran, and S. Sathiyamurthy, Proceedings of the Sixth ACM International Workshop on Modeling Analysis and Simulation of Wireless and Mobile Systems (MSWiM 2003), held along with ACM MobiComm'03, pp. 108-115, San Diego, CA, September 2003.
22. "Interactive Visual Method for Motion and Model Reuse", Akanksha, Z. Huang, B. Prabhakaran, and Ruiz, Jr. C. R., Proceedings of Graphite 2003, David Arnold and Geoff Wyvill (eds.), A Publication of ACM SIGGRAPH, pp. 29-36, color plates, 293. Melbourne, Australia, 2003.
23. "A Framework For Reuse From Animation Multi-Databases", N. Chokkareddy, Z. Huang, B. Prabhakaran, and M. Vattikuti, Proceedings of Multimedia Modeling Conference (MMM 2003), Chin-Hui Lee and Timothy K. Shih (eds), Tamkang University, Taiwan, January, 2003, pp. 343-364.
24. "Programmable Web Environment for Multimedia Applications", J. Jaklinki and B. Prabhakaran, Proceedings of IEEE Workshop on Multimedia Signal Processing (MMSP'02), US Virgin Islands, December 2002.

25. "Flexible Strategies for Disk Scheduling in Multimedia Presentation Servers", S. Emilda, L. Jacob, O. Daescu, and B. Prabhakaran, Proceedings of IEEE Workshop on Multimedia Signal Processing (MMSP'02), US Virgin Islands, December 2002.
26. "MAC Protocol Enhancements and A Distributed Scheduler for QoS Guarantees over the IEEE 802.11 Wireless LANs", L. Jacob, Q. Qiu, R. R. Pillai, and B. Prabhakaran, Proceedings of the 56th IEEE Vehicular Technology Conference (VTC'2002), Vancouver, Canada, pp 2410-2413, September 2002.
27. "Mobile Tracking Using Forward Link in Cellular Networks", S. Shenbagaraman, S. Venkatesan, and B. Prabhakaran, Proceedings of Emerging Telecommunications Technologies Symposium, Richardson, September 2002. Also available as Technical Report UTD-CS-09-02, Department of Computer Science, University of Texas at Dallas, Richardson, TX 75083-0688, June 2002.
28. "Flexible Disk Scheduling for Multimedia Presentation Servers", S. Emilda, L. Jacob, O. Daescu, and B. Prabhakaran, 10th IEEE International Conference on Networks 2002 (ICON 2002), pp. 151-155, Singapore, 2002.
29. "MAC Protocol Enhancements for QoS Guarantee and Fairness over the IEEE 802.11 Wireless LANs", Q. Qiang, L. Jacob, R. Pillai, and B. Prabhakaran, Proceedings of 11th IEEE International Conference on Computer Communications and Networks (IC3N02), pp. 628-633, Miami, Florida, October 2002.
30. "A Scalable Web Hosting Framework", B. Prabhakaran, Yuguang Tu, and Yin Wu, ISCA 14th International Conference on Parallel and Distributed Computing Systems Richardson, Texas, USA, August 8-10, 2001
31. "Reusing Motions and Models in Animation", Akanksha, Z. Huang, B. Prabhakaran, C. R. Ruiz, Jr., Proceedings of Eurographics MM 2001, Springer-Verlag/Wien, ISBN 3-211-83769-8, pp. 21-32. Also appears in J. A. Jorge, N. M. Correia, H. Jones and M. B. Kamagai (eds.) Multimedia 2001, Springer-Verlag/Wien, ISBN 3-211-83769-8, pp. 21-32, 2002.
32. "An On-line Repository for Embedded Software", J.-Ling Yen, Latifur Khan, B. Prabhakaran, Farokh B. Bastani, and John Linn, the Thirteenth Annual International Conference on Tools with Artificial Intelligence (ICTAI-2001), Richardson, TX, 2001.
33. "Reusing Animations in Databases for Multimedia Presentations", B. Prabhakaran, Bin-jia Jiao, Conrado R. Ruiz, Jr. and Zhiyong Huang, Asian Computing Conference 2000, Malaysia.
34. "A Forward Error Recovery Technique For Real-time MPEG-2 Video Transport and its Performance over Wireless IEEE 802.11 LAN", R. Pillai, B. Prabhakaran, and Q. Qiang, Proceedings of IEEE ICCCN 2000, Las Vegas, October 2000.
35. "Protocols for Collaborative Multimedia Presentations", E. Hwang and B. Prabhakaran, IEEE International Conference on Multimedia and Expo (ICME 2000), New York, July 2000.

36. "Scalable Video Delivery on the Web", B. Prabhakaran, Yuguang Tu, and Yin Wu, Network and Operating System Support for Digital Audio and Video (NOSSDAV 2000), Chapel Hill, USA, June 2000.
37. "Merging Retrieval Requests for Multimedia Storage Server", B. Prabhakaran and E. Hwang, First International Workshop on Intelligent Multimedia Computing and Networking (IMMCN'2000), New Jersey, USA, March 2000.
38. "Scheduling Multimedia Information Delivery Over Unicast Wireless Channels", B. Prabhakaran, Proceedings of 3rd IEEE Symposium on Application-Specific Systems and Software Engineering and Technology (ASSET 2000), Richardson, Texas, March 2000.
39. "Application-Layer Broker For Scalable Internet Services With Resource Reservation", P. Bai, B. Prabhakaran, and A. Srinivasan, Proceedings of ACM Multimedia '99, Orlando, 1999.
40. "A Forward Error Recovery Technique For MPEG-II Video Transport", R. Pillai, B. Prabhakaran, and Q. Qiang, Proceedings of ACM Multimedia '99, Orlando, 1999.
41. "Resource Negotiation for Collaborative Multimedia Presentations", B. Prabhakaran, IEEE Conference on Multimedia Computing Systems (ICMCS'99), Florence, Italy, June 1999.
42. "Distributed Video Presentations", E. Hwang, B. Prabhakaran, and V.S. Subrahmanian, Proceedings of International Conference on Data Engineering (ICDE'98), Orlando, February 1998.
43. "Scheduling Responses From Video Databases", E. Hwang, B. Prabhakaran, and V.S. Subrahmanian, Proceedings of Third International Workshop on Multimedia Information Systems, Lake Como, Italy, September 1997.
44. "CHIMP: A Framework for Supporting Multimedia Document Authoring and Presentation", K.S. Candan, B. Prabhakaran and V.S. Subrahmanian, Proceedings of ACM Multimedia '96 Conference, Boston, November 1996.
45. "CHIMP: A Framework For Distributed Multimedia Documents", K.S. Candan, B. Prabhakaran, and V.S. Subrahmanian, Proceedings of Second International Workshop on Multimedia Information Systems, West Point, New York, USA, September 1996.
46. "Quality of Service Considerations For Distributed, Orchestrated Multimedia Presentation", S.V. Raghavan, B. Prabhakaran and Satish K. Tripathi, Proceedings of High Performance Networking 94 (HPN'94), Paris, France, July 1994, pp. 217-238.
47. "Synchronization Models For Multimedia Presentation With User Participation", B. Prabhakaran and S.V. Raghavan, Proceedings of ACM Multimedia '93, Anaheim, California, August 1993, pp. 156-164.
48. "Formal Specification of Fault Management Systems Using O-ESTELLE", B. Prabhakaran and S.V. Raghavan, Proceedings of International Conference on Communication Systems (ICCS), Singapore, November 1992.

49. "Object Oriented Extensions to ESTELLE", B. Prabhakaran and S.V. Raghavan, Proceedings of the Tenth International Conference in Computer Communication, ICC-90, pp. 750-757, November 1990.
50. "Design and Implementation of Distributed Information Management System in OSI Environment", M.K. Suresh, B. Prabhakaran and S.V. Raghavan, Proceedings of International Conference on Communication Systems (ICCS), Singapore, November 1990.
51. "EEPP: E-Estelle Pre-Processor", B. Prabhakaran and S.V. Raghavan, Proceedings of International Conference on Communication Systems (ICCS), Singapore, November 1990.
52. "Implementation of Distributed Information Management System over TCP/IP", S.V. Raghavan, M.K. Suresh and B. Prabhakaran, Proceedings of Intl. Conference on Management of Data (COMAD'89) held at Hyderabad, November 1989.

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II. Invited Talks

1. Invited participant and speaker, Dagstuhl Seminar on Future Directions in Multimedia Research, Dagstuhl Castle, Germany, March 2005.
2. Tutorial speaker in ACM Multimedia Conferences:
 - (a) ACM Multimedia 2001 Conference, Ottawa, Canada: Scalable Multimedia servers.
 - (b) ACM Multimedia 2000 Conference, Los Angeles, November 2000: Scalable Multimedia Servers.
 - (c) ACM Multimedia '99 Conference, Orlando, November 1999: Adaptive Multimedia Presentations.
 - (d) ACM Multimedia '98 Conference, Bristol, UK, September 1998: Managing Resources For Multimedia Presentations.
3. Tutorial speaker, International Conference on Distributed Multimedia Systems (DMS 2000), Enschede, Netherlands.
4. Invited participant and speaker, Dagstuhl Seminar on Network Resource Management and Multimedia Synchronization, Dagstuhl Castle, Germany, July, 1997.

III. External Funding

1. "Culture and Motion Capture - an HTS Application (CMCHA)", BAE Systems/ US Army Space and Missile Defense Command (USASMDC), Pt: Thomas E. Linehan, Co-Pis: A. Blanchard & B. Prabhakaran, \$186,465, 1/5/2007 - 7/15/2007.
2. "REU - CAREER: Animation Databases", National Science Foundation (NSF)-Information & Intelligent Systems (IIS), IIS-0237954, Pt: B. Prabhakaran, \$12,000, August 2006 - 2007.
3. "Archiving 3D Motions", Pt: B. Prabhakaran, Project Emmit grant, \$30,000, December 2006.
4. "Storage, Retrieval, and Delivery of 3D Models and Multi-attribute Motion Data", Pt: B. Prabhakaran, Army Research Office (ARO). Program: Discrete Mathematics and Computer Graphics, Mathematics Division. \$240,000, September 2005 - August 2008.
5. "NeTS-ProWIN: Interference Aware Adhoc Networks", Pt: B. Prabhakaran, Project Emmit grant, \$75,000, March 2005 - August 2006.
6. "Supplemental Funding for MoCap Lab", Pt: B. Prabhakaran, Co-Pt: Mihai Nadin, Project Emmit grant, \$22,000, July 2005.
7. "REU/CAREER: Animation databases", Pt: B. Prabhakaran, NSF (National Science Foundation) NSF Research Experience for Undergraduates (REU) Supplemental Award, IIS (Information & Intelligent Systems) REU/CAREER Award, IIS-0237954, \$6,000, August 15, 2004- September 1, 2005.

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8. "3D Watermarking", PI: B. Prabhakaran, AT&T Foundation, \$33,333, December 2004 - June 2006.
9. "Motion Capture and Virtual Reality Laboratory", PI: B. Prabhakaran, Co-PI: Thomas E. Linehan, Project Enmit grant, \$300,000, August 2004.
10. PI, "CAREER: Animation Databases", US National Science Foundation (NSF) CAREER Grant, IIS-0237954, \$400,000, 2003-2008.
11. International Collaboration Partner, "Study on the Platform for QoS guaranteed Traffic Engineering and Multimedia Service under Next Generation Wired/Wireless Integrated Network Environment", Korea IT Industry Promotion Agency, 2003/8/1 - 2007/7/31, \$5.5 million (multi-party project with several universities).
12. Co-PI, "TL 9000 Registration Repository System (RRS) for QnEST Forum", Quality Excellence for Suppliers of Telecommunications (QnEST) Forum, (approximately) \$1 million, 2002-present. PI: D. Harris.
13. Investigator, Clark Foundation grant for Scheduling delivery of multimedia information. Investigators: B. Prabhakaran and R.N. Uma. Grant amount \$48,000, for a period of 1 year (Jan. - Dec. 2002).
14. Funded research with Texas Instruments, through the Embedded Software Center: Software component repository. Supported a Research Assistant for 2 semesters, 2001-2002.
15. Funded research with Alcatel USA; funded through the Embedded Software Center: Web-server load balancing. Supported a Research Assistant for 1 year, 2002.
16. Principal Investigator, Academic Research Grant RP 3981669, on Multimedia documents-on-demand servers, National University of Singapore, S\$122,000, July 1998-2000.
17. PI-in-charge for the Project on Education and Research in Computer Networking (ERNET), for brief periods. Sponsors: Department of Electronics (DoE, Govt. of India) and the United Nations Development Program (UNDP).
18. PI-in-charge for research based consultancy on distributed databases for the Department of Telecommunications (DoT, Govt. of India), for brief periods.

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Teaching

I. Students Supervised

A. Graduated PhD Students:

1. Li, Chuanjun (Efficient 3D Motion Pattern Retrieval in Large Motion Capture Databases). **Best PhD Dissertation Award for Year 2006**. Currently: Post-doc at Brown University, Supervisor: Prof Andy van Dam.
2. Li, Hui (Streaming 3D Progressive Meshes over Lossy Networks). Currently: Research Engineer at Ask.com.
3. Li, Ming (Interference Aware QoS Strategies In IEEE 802.11 Wireless Networks). **Best TA Award for Year 2006**. Currently: Assistant Professor, California State University, Fresno.

B. Current Doctoral Advisement:

1. Parag Agarwal: *Collision Detection and Resolution in 3D Environments*
2. Gaurav Pradhan: *Indexing Large Human Motion Motion Databases*
3. Yoohan Chini: *Behavior Modeling in 3D Games*
4. Junqiang Zhou: *Art Gallery, Motion Capture and Security Surveillance Problems*. (Co-Supervised with Prof Simeon Ntafos).
5. Puneet Maheswari: Topic TBD.

C. Current Masters Advisement: Manoj Pawar, Magesh Panchanathan, Amruthraj Beladavar.

D. Completed MS Dissertations

1. Agrawal, Sameet, "Error Concealment Scheme for Loss Tolerant 3D Progressive Meshes, 2006.
2. Naik, Sagar S., "3D Shape Retrieval, 2006.
3. Prakash, Arun, "Visualization of Animation Databases, 2006.
4. Ramaswamy, Vivek Shankar, "Demand-Driven Retrieval Schedules for Progressive Transmission of 3D Animations, 2006.
5. Jain, Arishuman, "Adaptive Packet Bursting Scheme for Handling QoS in Multi-rate Multipoint AdHoc networks, 2005.
6. Kulkarni, Punit R., "An Efficient Pattern Isolation and Recognition System for Multi-Attribute Streaming Data, 2005.

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7. Lalwani, Ashok J., "Interference-aware Routing in Wireless Ad Hoc Networks, 2005.
8. Pradhan, Gaurav N., "Indexing and Compression of Multi-Attribute Variable Length Multidimensional Motion Data, 2005.
9. Rajagopalan, Srinivas, "Reduction of Search Space for Collision Detection in Animation Authoring Environments, 2005.
10. Ramesh, Shwetha, "Interference-Aware Topology Control in Wireless Ad-Hoc Networks
11. Shah, Parinkumar D., "New Dependent Partition Based 3D Model Streaming, 2005.
12. Shankar, Venkatesh, "Providing QoS Support in Multi-Hop Ad Hoc Networks, 2005.
13. Zhai, Peng, "Animation Data Translation Based on Schema Matching, 2005.
14. Krishna Rangarajan, "3D Modeling, 2004.
15. Phani S Kotharu, "Partial Fuzzy Query Resolution for Animation Authoring, 2004.
16. Sukumar Ramraj, "Combinatorial Scheduling Algorithms To Sequence Information Delivery", 2003.
17. Satish Sathyanurthy, "'End-to-End QoS Guarantee in Heterogeneous Wired-Cum-Wireless Networks", 2003.
18. Nutan Chokka Reddy, "3D Model Matching", 2003.
19. Mythreyi Vattikuti, "XML-Based Toolkit for Reusing Multi-format Animations", 2003.
20. Deepa S. Shankar, "Development of Collaborative Framework Enabling Content Adaptation on Internet Data", 2003.
21. Veerdhawal Pande: "Dynamic Content Generation Using Collaborative Caching", 2003.
22. Deepthi Chand Parvathaveni (Jointly supervised with Dr R.N. Uma), "Placement of Replicated Continuous Media Objects", 2003.
23. Narayanan Annamalai, (Jointly supervised with Dr Gopal Gupta), "An Extensible Transcoder for HTML to VoiceXML Conversion", 2002.
24. J. Jagannatha Rao, Configurable Framework for Collaborative Applications Management, 2002.
25. Subbiah Shenbagaraman (Jointly supervised with Dr S. Venkatesan), "Tracking Mobile Devices in Cellular Networks using Forward Link", 2002.
26. Tu Yuguang (National University of Singapore): Object-level Scalable Web Servers, 2000.

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II. CLASSROOM TEACHING

1. 2006 Fall, Multimedia Database Management Systems
 2. 2006 Spring, Advanced Operating Systems
 3. 2006 Spring, Discrete Mathematics II
 4. 2005 Fall, Recent Advances in Multimedia Database Management Systems
 5. 2005 Spring, Advanced Operating Systems
 6. 2005 Spring, Discrete Mathematics II
 7. 2004 Fall, Advanced Operating Systems
 8. 2004 Spring, Advanced Operating Systems
 9. 2003, Spring, Advanced Operating Systems
 10. 2002, Fall, Advanced Operating Systems
 11. 2002, Spring, Advanced Operating Systems
 12. 2001, Fall, Advanced Operating Systems
 13. 2001, Spring, Programming in Java
- Teaching at Other Universities**
1. 1998, Fall - 2000 Spring: Computer Networks, National University of Singapore.
 2. 1998, Spring, Hypermedia Information Systems, National University of Singapore.
 3. 1997, Spring, Telecommunication Protocol Design, University of Maryland, College Park, USA.
 4. 1994, Spring - Fall, Computer Networks, Indian Institute of Technology, Chennai (formerly, Madras), India.
 5. 1993, Fall, Programming & Data Structures, Indian Institute of Technology, Chennai, India.

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Services

I. Professional Services

A. Journal Related Services:

1. Member of the editorial board for the *Journal of Multimedia Tools and Applications*, Springer Publishers, Boston, MA, USA, 1995 - present.
2. Guest-editor, special issue on *Multimedia Authoring & Presentation Techniques*, for ACM Multimedia Systems journal, May 2000.
3. Guest-editor, special issue on *Techniques for multimedia Presentation*, for the *Journal of Multimedia Tools and Applications*, November 2000.
4. Guest-editor, special issue on *Mobile Computing Environments for Multimedia Systems*, *Journal of Multimedia Tools and Applications*, July 1999.
5. Reviewer, IEEE Transactions on Digital Forensics and Security.
6. Reviewer, IEEE Journal on Selected Areas in Communication.
7. Reviewer, Machine Vision and Applications Journal.
8. Reviewer, IEEE MultiMedia
9. Reviewer, International Journal of Network Management
10. Reviewer, IEEE Transactions on Computers
11. Reviewer, Very Large Databases (VLDB) Journal.
12. Reviewer, ACM Transactions on Multimedia Computing, Communications, and Applications.
13. Reviewer, ACM/Springer-Verlag Multimedia Systems.

B. Review Panel Services:

1. Reviewer, US Army Research office (ARO) Proposals.
2. Member, NSF Review Panel, Information & Data Management (IDM) IR - Generalized Methods, March 2004.
3. Member, NSF Review Panel, Information Technology Research (ITR), March 2003.
4. Member, NSF Review Panel, Distributed Systems Program, February 2003.
5. Member, National Science Panel (NSF) Review Panel, Integrative Graduate Education and Research Traineeship (IGERT) Program, December 2002.

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C. Conference Related Services:

1. General Co-chair, ACM Multimedia Security Workshop, Dallas, September 20-21, 2007.
2. PC Member, ACM Multimedia 2007.
3. Program Vice co-chair of Image and Video Processing Track at 2007 IEEE International Symposium on Multimedia (ISM'07) which will be held in Taiwan on December 10-12, 2007.
4. Member, Program Committee, IEEE BroadNets 2007.
5. Member, Program Committee, International Conference on Multimedia Systems & Applications (IMSA) 2007.
6. Member, Program Committee, IASTED International Conference on Wireless and Optical Communications (WOC 2007), Montreal, Canada from May 30-June 1, 2007.
7. Member, Program Committee, International MultiMedia Modeling Conference (MMM) 2007
8. PC Member, ACM Multimedia 2004 Conference, November 2006.
9. PC Member, International Workshop on Multimedia and Web Design, 13 December 2004, Miami, Florida, USA.
10. PC Member, ACM Multimedia 2004 Conference Short Papers Track, November 2004.
11. PC Member, Symposium on Document Engineering, McLean, VA, November 2004.
12. Associate Chair, ACM Multimedia, Berkeley, CA, November 2003.
13. Co-organizer, Special Session on Multimedia Authoring and Presentation, IEEE International Conference on Multimedia & Expo, ICME 2003, Baltimore, MD, July 2003.
14. Member, Program Committee, ACM SIGWEB Symposium on Document Engineering, (SDE '01), McLean, VA, November 2002.
15. Member, Program Committee, 8th International Workshop on Multimedia Information Systems (MIS 2002).
16. Member, Program Committee, 15th International Conference on Computer Communication (ICCC 2002), August 2002.
17. Member, Program Committee, Internet and Multimedia Systems and Applications (IMSA) conferences, 2000, 2001, & 2002.
18. Member, Program Committee, Multimedia Computing and Networking 2002 (MMCN'02), San Jose, California, from January 21-25, 2002.

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19. Member, Program Committee, IEEE International Conference on Computer Communication and Networks (ICCCN 2001), Scottsdale, Arizona, October 2001.
20. Member, Program Committee, ACM SIGWEB Symposium on Document Engineering, (SDE'01), Atlanta, Georgia, November 2001.
21. Associate Chair: ACM Multimedia '99, Orlando, November 1999 and ACM Multimedia 2000, Los Angeles.
22. Member, Program Committee, International Workshop on Multimedia Database Management Systems, August, 1999, New York State, USA.
23. Member, Program Committee of the International Conference on Internet and Multimedia Systems, Applications (IMSA), Grand Bahamas, October 1999.
24. Member, Program Committee of the Second IASTED/ISMM International Conference on Distributed Multimedia Systems and Applications, Stanford, CA, USA, August 1995.
25. Member, Program Committee, International Workshop on Multimedia Database Management Systems, August 5-7, 1998, Fairborn, OH, USA.
26. Tutorial Chair, Singapore International Conference on Networking (SICON'98), Singapore, July 1998.

II. Administrative Services

1. Member, Faculty Senate, University of Texas at Dallas.
2. Chair, Graduates Admissions Committee, Department of Computer Science, University of Texas at Dallas, November 2001 - present.
3. Member, Graduates Admissions Committee, Department of Computer Science, University of Texas at Dallas, November 2001 - present.
4. Member, Teaching Assistants Committee, Department of Computer Science, University of Texas at Dallas, December 2003 - present.
5. Member, Under-graduate Program Committee, Telecom Engineering Program, University of Texas at Dallas.
6. Member, Supervisory Committee of several PhD students.

Ravi Prakash

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Department of Computer Science
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February 27, 2007

Educational History:

B. Tech., June 1990, Indian Institute of Technology, Delhi, India, Computer Science & Engineering.
 M. S., December 1991, The Ohio State University, Columbus, Ohio 43210, Computer & Information Science.
 Ph. D., August 1996, The Ohio State University, Columbus, Ohio 43210, Computer & Information Science.
 Dissertation Title: Fault-tolerant resource management in mobile computing systems.
 Advisor: Dr. Mukesh Singhal.

Employment History - principal positions since the Bachelor's degree:

- Associate Professor, August 2001 - present, University of Texas at Dallas.
- Assistant Professor, July 1997 - August 2001, University of Texas at Dallas.
- Visiting Assistant Professor, September 1996 - June 1997, University of Rochester.
- Presidential Fellow, January 1996 - August 1996, The Ohio State University.
- Graduate Teaching/Research Associate, September 1990-December 1995, Department of Computer and Information Science, The Ohio State University.

Employment History - other positions since the Bachelor's degree:

- Visiting Researcher, summer of 2003, 2005 and 2006, Swiss Federal Institute of Technology, Lausanne (EPFL).

Professional recognitions, honors, memberships:

- Certificate of Achievement: for continuous exemplary contributions to Ph.D. education and research in the Erik Jonsson School of Engineering and Computer Science, U.T. Dallas, September 2006.
- Outstanding Service Award, Erik Jonsson School of Engineering and Computer Science, U.T. Dallas, September 2006.
- Best Paper Award, Software Technology Track, Hawaii International Conference on System Sciences, January 2006.
- Appointed Associate Editor, IEEE Transactions on Mobile Computing, August 2005.
- CAREER Award, National Science Foundation, 2001-2006.
- Nominee: Chancellor's Council Outstanding Teacher award, 1999-2000, 2000-2001, University of Texas at Dallas.
- Excellence in Teaching award, 1999-2000, 2001-2002, Department of Computer Science, Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas.
- Selected among top three papers, 1999, Mobility in Databases and Distributed Systems Workshop (MDDSD-DEXA'99), Florence, Italy, August 30-September 3, 1999. To be published in ACM/Baltzer Mobile Networks and Applications (MONET) journal.
- Selected among best five papers, 1999, International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIALM), Seattle, August 20, 1999.

- *Best Paper, 1998*, Eighteenth International Conference on Distributed Computing Systems (ICDCS'98), Amsterdam, The Netherlands, May 26-29, 1998 (in a five-way tie for best paper), Institute of Electrical and Electronic Engineers (IEEE).
- *Presidential Fellowship, 1996*, The Ohio State University. Awarded to doctoral students judged to have outstanding research ability and promise.
- *Outstanding Paper Award, 1994*, The International Symposium on Parallel Architectures, Algorithms, and Networks (ISPAN), Kanazawa, Japan, December 1994.
- *The Best B.Tech. Major Project Award, 1990*, award given to the best project in the Department of Computer Science and Engineering, Indian Institute of Technology, Delhi. Implemented a fault-tolerant file system with disk-mirroring.

Scholarly and creative activity:

Articles published in refereed journals:

1. "A Distributed Protocol for Dynamic Address Assignment in Mobile Ad Hoc Networks." M. Thoppian and R. Prakash. *IEEE Transactions on Mobile Computing*, Volume 5, Number 1, January 2006.
2. "Causality and Spatial-Temporal Ordering of Events in Mobile Systems." R. Prakash and R. Baldoni. *ACM/Kluwer Journal on Mobile Networks and Applications (MONET)*, Volume 9, Number 5, Pages 507-516, October 2004.
3. "Distributed Wireless Channel Allocation in Networks with Mobile Base Stations." S. Nesargi and R. Prakash. *IEEE Transactions on Vehicular Technology*, Volume 51, Number 6, Pages 1407-1421, November 2002.
4. "A Routing Algorithm for Wireless Ad Hoc Networks with Unidirectional Links." R. Prakash. *ACM/Baltzer Wireless Networks (WINET) Journal*, Volume 7, Number 6, Pages 617-626, November 2001.
5. "Load-Balanced Location Management for Mobile Systems using Quorums and Dynamic Hashing." R. Prakash, Z. Haas, and M. Singhal. *ACM/Baltzer Wireless Networks (WINET) Journal*, Volume 7, Number 5, Pages 497-512, September 2001.
6. "A Feedback Based Scheme for Improving TCP Performance in Ad Hoc Networks." K. Chaudhri, S. Raghunathan, S. Venkatesan, and R. Prakash. *IEEE Personal Communication Systems (PCS) Magazine: special issue on Ad Hoc Networks*, Volume 8, Number 1, Pages 34-39, February 2001.
7. "Aggressive Error Recovery for TCP over Wireless Links." E.A. Qaddoura, R. Prakash, and L. Tamil. *Integrated Computer-Aided Engineering Journal* (special issue on Distributed Computing and Networks), CRC Press, Pages 287-296, July 2000.
8. "Distributed Dynamic Fault-Tolerant Channel Allocation for Mobile Computing." R. Prakash, N. G. Shivavathi, and M. Singhal. *IEEE Transactions on Vehicular Technology*, Volume 48, Number 6, Pages 1874-1888, November 1999.
9. "Designing Communication Strategies for Heterogeneous Parallel Systems." R. Prakash and D. K. Panda. *Parallel Computing*, Elsevier Science Publishers, Volume 24, Pages 2035-2052, 1998.

10. "Sorted-FIFO Communication for Asynchronous Distributed Systems." R. Baldoni, R. Beraldi, and R. Prakash. *Computer Journal*, Volume 41, Number 5, Pages 337-348, 1998.
11. "Efficient Delta-Causal Broadcasting." R. Baldoni, R. Prakash, M. Raynal, and M. Singhal. *International Journal of Computer Systems Science and Engineering*, Volume 13, Number 5, Pages 263-271, September 1998.
12. "Dependency Sequences and Hierarchical Clocks: Efficient Alternatives to Vector Clocks for Mobile Computing Systems." R. Prakash and M. Singhal. *ACM/Baltzer Journal on Wireless Networks*, Volume 3, Number 5, Pages 349-360, October 1997.
13. "An Adaptive Causal Ordering Algorithm Suited to Mobile Computing Environments." R. Prakash, M. Reynal, and M. Singhal. *Journal of Parallel and Distributed Computing*, Volume 41, Number 2, Pages 190-204, March 1997.
14. "Simplices by Point-Sliding and the Yannitsky-Levin Algorithm." U. Faigle, M. Hunting, W. Kern, R. Prakash, and K. J. Supowit. *Mathematical Methods of Operations Research*, Volume 46, No. 1, Pages 131-142, 1997.
15. "Low-Cost Checkpointing and Failure Recovery in Mobile Computing Systems." R. Prakash and M. Singhal. *IEEE Transactions on Parallel and Distributed Systems*, Pages 1035-1048, October 1996.

Articles published in refereed conference proceedings:

1. "Improving Performance of Parallel Simulation Kernel for Wireless Network Simulations." M. Thoppian, S. Venkatesan, H. Vu, R. Prakash, N. Mittal and J. Anderson. *Proceedings of MILCOM-2006*, October 2006.
2. "Real-time Simulations of Mobile Ad Hoc Networks (MANET) in OPNET Modeler." H. Vu, M. Thoppian, A. Mardini, S. Venkatesan, R. Prakash and J. Anderson. *Proceedings of OPNETWORK 2006*, August 2006.
3. "MAC-layer Scheduling in Cognitive Radio based Multi-hop Wireless Networks." M. Thoppian, S. Venkatesan, R. Prakash and R. Chandrasekaran. *Proceedings of IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, June 26-29, 2006.
4. "Variable Power Broadcasting in Ad Hoc Networks." A. Chigammi, K. Sarec and R. Prakash. *Proceedings of IEEE International Conference on Communications (ICC'06)*, June 2006.
5. "One-dimensional discrete time Markov chain for performance evaluation of IEEE 802.11 DCF scheme." S. Kuppa, R. Prakash and S.-C. Niu. *Proceedings of IEEE Vehicular Technology Conference (VTC)*, May 2006.
6. "Reliable Broadcast in Wireless Mobile Ad Hoc Networks." M. Mohsin, D. Cavlin, Y. Sasson, R. Prakash and A. Schiper. *Proceedings of the Hawaii International Conference on System Sciences (HICSS'06)*, January 2006.
7. "Hop-Constrained Energy-Aware Routing in Wireless Sensor Networks." S.R. Gandham, M. Dawande and R. Prakash. *Proceedings of the IEEE Globecom conference*, November, 2005.

8. "Time-efficient layer-2 auto-configuration for cognitive radios." S. Krishnamurthy, M. Thoppian, S. Kuppa, R. Chandrasekaran, S. Venkatesan, N. Mital and R. Prakash. *Proceedings of the IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS)*, Phoenix, Arizona, November 14-16, 2005.
9. "SAN: Smart Ad hoc Networks." S.R. Gandham, S. Kuppa and R. Prakash. *Proceedings of the IEEE Vehicular Technology Conference (VTC)*, Fall 2005.
10. "Control Channel based MAC Layer Configuration, Routing and Situation Awareness for Cognitive Radio Networks." S. Krishnamurthy, M. Thoppian, S. Venkatesan and R. Prakash. *Proceedings of MILCOM 2005*, Atlantic City, New Jersey, October 2005.
11. "Link Scheduling in Sensor Networks: Distributed Edge Coloring Revisited." S.R. Gandham, M. Dawande and R. Prakash. *Proceedings of IEEE Infocom 2005*, March 2005.
12. "Adaptive IEEE 802.11 DCF Scheme with Knowledge-based Backoff." S. Kuppa and R. Prakash. *Proceedings of the IEEE Wireless Communications and Networking Conference (WCNC)*, March 2005.
13. "Undesirable service differentiation in future WLANs (short paper)." S. Kuppa, S.R. Gandham and R. Prakash. *Proceedings of the First International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks (QShine)*, pp 304-307, October 2004.
14. "A QoS aware MAC layer protocol for Wireless LANs." N. Choi, S. Venkatesan and R. Prakash. *Proceedings of the International Workshop on Mobile and Wireless Networking (MWN 2004)*, August 2004.
15. "An Integral Flow-Based Energy-Efficient Routing Algorithm for Wireless Sensor Networks." S.R. Gandham, M. Dawande and R. Prakash. *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, March 2004.
16. "Service Differentiation Mechanisms for IEEE 802.11-based Wireless Networks." S. Kuppa and R. Prakash. *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, March 2004.
17. "Energy-Efficient Schemes for Wireless Sensor Networks with Multiple Mobile Base Stations." S.R. Gandham, M. Dawande, R. Prakash and S. Venkatesan. *Proceedings of IEEE Globecom*, December 2003.
18. "Reliable Multicast in Mobile Networks." R. Prakash, A. Schiper and M. Moisin. *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC)*, March 2003.
19. "IP Address Assignment in a Mobile Ad Hoc Networks." M. Moisin and R. Prakash. *Proceedings of MILCOM*, September 2002, IEEE.
20. "MANEToon: Configuration of Hosts in a Mobile Ad Hoc Network." S. Nesargi and R. Prakash. *Proceedings of INFOCOM*, June 2002, IEEE.

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21. "Effect of Availability Factor Threshold and Clustering Gap on Performance of Clustering Mechanisms for Multi-cluster Mobile Ad Hoc Networks." A.A. Siddiqui and R. Prakash. *Proceedings of ICC*, March 2002, IEEE.
22. "Issues Pertaining to Service Discovery in Mobile Ad Hoc Networks." S. Nesargi and R. Prakash. *Proceedings of ACM Workshop on Principles of Mobile Computing (POMC)*, August 2001.
23. "Issues in Message Passing for a Tele-Immersive Experience." R. Prakash. *Proceedings of Sixth International Workshop on Object-oriented Real-time Dependable Systems (WORDS'01)*, Rome, January 8-10, 2001.
24. "A Tunneling Approach to Routing with Unidirectional Links in Mobile Ad-Hoc Networks." S. Nesargi and R. Prakash. *Proceedings of the IEEE International Conference on Computer Communications and Networks (ICCCN)*, Las Vegas, October 16-18, 2000.
25. "Effects of Link Stability and Directionality of Motion on Routing Algorithms in MANETs." A. Kamat and R. Prakash. *Proceedings of the IEEE International Conference on Computer Communications and Networks (ICCCN)*, Las Vegas, October 16-18, 2000.
26. "Max-Min D-Cluster Formation in Wireless Ad Hoc Networks." A. Amis, R. Prakash, D.T. Huynh and T. Vuong. *Proceedings of the IEEE INFOCOM-2000 Conference*, Tel Aviv, Israel, March 26-30, 2000.
27. "Load-Balancing Clusters in Wireless Ad Hoc Networks." A. Amis, and R. Prakash. *Proceedings of the 3rd IEEE Symposium on Application-Specific Systems and Software Engineering Technology (ASSET 2000)*, Richardson, Texas, March 24-25, 2000.
28. "Gateway Routing: A Cluster Based Mechanism for Recovery from Mobile Host Partitioning in Cellular Networks." S. Raghunathan, S. Venkatesan, and R. Prakash. *Proceedings of the 3rd IEEE Symposium on Application-Specific Systems and Software Engineering Technology (ASSET 2000)*, Richardson, Texas, March 24-25, 2000.
29. "Modifications to TCP for Improved Performance and Reliable End-to-End Communication in Wireless Networks." R. Prakash and M. Sahasrabudhe. *Proceedings of IEEE Wireless Communications and Networking Conference (WCNC 99)*, New Orleans, September 21-24, 1999.
30. "Information Dissemination in Partitionable Mobile Ad Hoc Networks." G. Karunamochi, S. Muralidharan and R. Prakash. *Proceedings of the IEEE Symposium on Reliable Distributed Systems (SRDS 99)*, Lausanne, Switzerland, Pages 4-13, October 19-22, 1999.
31. "Causality and the Spatial-Temporal Ordering of Events in Mobile Systems." R. Prakash and R. Baldoni. *Proceedings of the 2nd International Workshop on Mobility in Databases and Distributed Systems (part of the 10th International Conference and Workshops on Database and Expert Systems Applications)*, August 30-Sep 3, Florence, Italy.

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32. "Unidirectional Links Prove Costly in Wireless Ad Hoc Networks." R. Prakash. *Proceedings of the Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIAL-M'99)*, Seattle, Pages 15-22, August 20, 1999.
33. "Routing in LEO-Based Satellite Networks." V.V. Gounder, R. Prakash and H. Abu-Amara. *Proceedings of IEEE Emerging Technologies Symposium on Wireless Communications and Systems*, Richardson, Pages IX-9-IX-14, April 1999.
34. "Distributed Wireless Channel Allocation in Networks with Mobile Base Stations." S. Nesargi and R. Prakash. *Proceedings of IEEE INFOCOM 99*, New York, Pages 592-600, March 1999.
35. "Impact of Unidirectional Links on Wireless Ad-Hoc Networks." R. Prakash and M. Singhal. *Proceedings of the DIMACS Workshop on Mobile Networking and Computing*, Rutgers University, March 1999.
36. "Architecture for Group Communication in Mobile Systems." R. Prakash and R. Baldoni. *Proceedings of the IEEE Symposium on Reliable Distributed Systems (SRDS)*, West Lafayette, Pages 235-242, October 20-23, 1998.
37. "A Feedback Based Scheme For Improving TCP Performance in Ad-Hoc Wireless Networks." K. Chandran, S. Raghunathan, S. Venkatesan and R. Prakash. *Proceedings of the 18th International Conference on Distributed Computing Systems (ICDCS)*, Amsterdam, Pages 472-479, May 26-29, 1998.
38. "Fault-Tolerant Mobility Planning For Rapidly Deployable Wireless Networks." C. Shields, Jr., V. Jain, S. Nafos, R. Prakash and S. Venkatesan. *Proceedings of IEEE Workshop on Fault-Tolerant Parallel and Distributed Systems (Springer-Verlag LNCS)*, Orlando, April 3, 1998.
39. "Dynamic Hashing + Quorum = Efficient Location Management for Mobile Computing Systems." R. Prakash and M. Singhal. *Proceedings of ACM Symposium on Principles of Distributed Computing (PODC)*, Santa Barbara, Page 291, August 1997 (short presentation).
40. "Flexible General Purpose Communication Primitives for Distributed Systems." R. Baldoni, R. Beraldi and R. Prakash. *Proceedings of the 23rd EUROMICRO Conference on High Performance Distributed Computing (HPDC)*, Portland, Pages 201-210, August 1997.
41. "Distributed Wireless Channel Allocation in Cellular Systems with Mobile Base Stations." R. Prakash. *Workshop on Nomadic Computing* (satellite workshop of IPPS'97), Geneva, April 5, 1997.
42. "Broadcast with Time and Causality Constraints for Multimedia Applications." R. Baldoni, R. Prakash, M. Raynal, and M. Singhal. *Proceedings of the 23rd EUROMICRO Conference (IEEE Society Press)*, Prague, Czech Republic, Pages 617-626, September 2-5, 1996.
43. "A Dynamic Approach to Location Management in Mobile Computing Systems." R. Prakash and M. Singhal. *Proceedings of the 8th International Conference on Software Engineering and Knowledge Engineering (SEKE'96)*, Lake Tahoe, Nevada, Pages 488-495, June 10-12, 1996.
44. "Modeling and Analysis of Channel Transferability in Mobile Computing Environments." R. Prakash and M. Singhal. *Proceedings of the International Conference on Parallel and Distributed Systems (ICPADS)*, Tokyo, Japan, Pages 198-205, June 4-6, 1996.
45. "An Efficient Causal Ordering Algorithm for Mobile Computing Environments." R. Prakash, M. Raynal, and M. Singhal. *Proceedings of the 16th International Conference on Distributed Computing Systems (ICDCS)*, Hong Kong, Pages 744-751, May 28-30, 1996.
46. "Efficient Delta-Causal Broadcasting for Multimedia Applications." R. Baldoni, R. Prakash, M. Raynal, and M. Singhal. *Proceedings of the 15th ACM Symposium on Principles of Distributed Computing (PODC)*, Philadelphia, Page 89 (short presentation), May 24-26, 1996.
47. "Distributed Dynamic Channel Allocation for Mobile Computing." R. Prakash, N. G. Shivavari and M. Singhal. *Proceedings of the 14th ACM Symposium on Principles of Distributed Computing (PODC)*, Ottawa, Canada, Pages 47-56, August 21-23, 1995.
48. "Architectural Issues in Designing Heterogeneous Parallel Systems with Passive Star-Coupled Optical Interconnection." R. Prakash and D. K. Panda. *Proceedings of the International Symposium on Parallel Architectures, Algorithms, and Networks (ISPAN)*, Kanazawa, Japan, Pages 246-253, December 14-16, 1994.
49. "Maximal Global Snapshot with Concurrent Initiators." R. Prakash and M. Singhal. *Proceedings of the 6th IEEE Symposium on Parallel and Distributed Processing (SPDP)*, Dallas, Texas, Pages 344-351, October 26-29, 1994.
50. "On the Relative Speed of Messages and Hierarchical Channels." M. Anuja and R. Prakash. *Proceedings of the 4th IEEE Symposium on Parallel and Distributed Systems (SPDP)*, Arlington, Texas, Pages 246-253, December 1992.

Other Publications

1. "The First Telecommunications Engineering Program in the United States." G.O. Burnham, C.D. Cantrell, A. Farago, A. Fumagalli, K. Kiasaleh, W.P. Osborne, and R. Prakash. *Journal of Engineering Education*, Pages 653-657, October, 2001.
2. "Education: Mobile Computing." R. Prakash. *IEEE Distributed Systems Online*, Volume 2, Number 6, 2001.

Invited and refereed talks/presentations to professional meetings and seminar or colloquia assemblies:

1. "Reliable Broadcast in Wireless Mobile Ad Hoc Networks." *Hawaii International Conference on System Sciences (HICSS'06)*, Kauai, Hawaii, January 2006.
2. "Effect of Availability Factor Threshold and Clustering Gap on Performance of Clustering Mechanisms for Multi-cluster Mobile Ad Hoc Networks." R. Prakash. *ICC 2002*, New York, March 2002.

3. "Issues in Message Passing for a Tele-Immersive Experience." R. Prakash. *Sixth International Workshop on Object-oriented Real-time Dependable Systems (WORDS'01)*, Rome, January 8-10, 2001.
4. "A Tunneling Approach to Routing with Unidirectional Links in Mobile Ad-Hoc Networks." IEEE International Conference on Computer Communications and Networks (ICCCN), Las Vegas, October 16-18, 2000.
5. "Effects of Link Stability and Directionality of Motion on Routing Algorithms in MANETs." IEEE International Conference on Computer Communications and Networks (ICCCN), Las Vegas, October 16-18, 2000.
6. "Load-Balancing Clusters in Wireless Ad Hoc Networks." Third IEEE Symposium on Application-Specific Systems and Software Engineering (ASSET 2000), Richardson, March 24-25, 2000.
7. "Information Dissemination in Partitionable Mobile Ad Hoc Networks." IEEE Symposium on Reliable Distributed Systems (SRDS'99), Lausanne, Switzerland, October 19-22, 1999.
8. "Unidirectional Links Prove Costly in Wireless Ad Hoc Networks." Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIAL-M'99), Seattle, August 1999.
9. "Routing in LEO-Based Satellite Networks." IEEE Emerging Technologies Symposium on Wireless Communications and Systems, Richardson, April 1999.
10. "Impact of Unidirectional Links on Wireless Ad-Hoc Networks." DIMACS Workshop on Mobile Networking and Computing, Rutgers University, March 1999.
11. "Distributed Wireless Channel Allocation in Networks with Mobile Base Stations." IEEE INFOCOM'99, New York, March 1999.
12. "Architecture for Group Communication in Mobile Systems." The Seventeenth IEEE Symposium on Reliable Distributed Systems (SRDS), West Lafayette, Indiana, October 1998.
13. "A Feedback Based Scheme For Improving TCP Performance in Ad-Hoc Wireless Networks." The Eighteenth International Conference on Distributed Computing Systems (ICDCS), Amsterdam, May 1998.
14. "Flexible General Purpose Communication Primitives for Distributed Systems." The Sixth Conference on High Performance Distributed Computing (HPDC), Portland, Oregon, August 1997.
15. "Dynamic Hashing + Quorum = Efficient Location Management for Mobile Computing Systems." ACM Symposium on Principles of Distributed Computing (PODC), Santa Barbara, California, August 1997.
16. "Location Management in Cellular Mobile Networks." Purdue University, Computer Science Department, July 1997.
17. "Distributed Wireless Channel Allocation in Cellular Systems with Mobile Base Stations." Workshop on Nomadic Computing, Geneva, April 1997.
18. "Modeling and Analysis of Channel Transferability in Mobile Computing Environments." International Conference on Parallel and Distributed Systems, Tokyo, June 1996.
19. "An Efficient Causal Ordering Algorithm for Mobile Computing Environments." The Sixteenth IEEE International Conference on Distributed Computing Systems, Hong Kong, May 1996.

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20. "Distributed Dynamic Channel Allocation for Mobile Computing." The Fourteenth ACM Symposium on Principles of Distributed Computing, Ottawa, Canada, August 1995.
21. "Architectural Issues in Designing Heterogeneous Parallel Systems with Passive Star-Coupled Optical Interconnection." International Symposium on Parallel Architecture, Algorithms, and Networks, Kanazawa, Japan, December 1994.
22. "Maximal Global Snapshot with Concurrent Initiators." The Sixth IEEE Symposium on Parallel and Distributed Systems, Dallas, Texas, October 1994.
23. "On the Relative Speed of Messages and Hierarchical Channels." The Fourth IEEE Symposium on Parallel and Distributed Systems, Arlington, Texas, December 1992.

Contributed (unrefereed) oral presentations at professional meetings:

1. "Distributed, dynamic configuration of nodes in mobile ad hoc networks." Department of Computer Science, University of Juarez, Mexico, September 2005.
2. "Distributed, dynamic configuration of nodes in mobile ad hoc networks." Department of Computer Science, Federal University of Santa Catarina, Florianopolis, Brazil, October 2004.
3. "Energy-Efficient Schemes for Wireless Sensor Networks with Multiple Mobile Base Stations." Department of Computer Engineering, Villanova University, Villanova, Pennsylvania, November 2003.
4. "Max-Min D-Cluster Formation in Mobile Ad Hoc Networks." EPFL, Lausanne, Switzerland, June 2003.
5. "Energy-Efficient Schemes for Wireless Sensor Networks with Multiple Mobile Base Stations." EPFL, Lausanne, Switzerland, June 2003.
6. "MANETconf: Configuration of Hosts in a Mobile Ad Hoc Network." Department of Computer Science and Engineering, Southern Methodist University, April 2003.
7. "DADHCP: Distributed Dynamic Configuration of Hosts in a Mobile Ad Hoc Network." Summer Research Institute, EPFL, Lausanne, Switzerland, July 2001.
8. "Problems with Existing Routing Protocols in Wireless Ad Hoc Networks." Department of Electrical Engineering, University of Washington, August 1999.
9. "Information Dissemination Issues in Wireless Ad Hoc Networks." National Science Foundation - Advanced Network Infrastructure Research Division, Washington, D.C., NSF PI meeting, January 1999.
10. "Transport Layer Protocol for Wireless Ad Hoc Networks." Department of Computer Science, University of Hartfordshire, June 1998.
11. "Transport Layer Protocol for Wireless Ad Hoc Networks." Department of Computer Engineering, University of Rome, "La Sapienza", June 1998.
12. "Network Aware Computing in Mobile Systems." Communications Technology Update '98, IEEE Dallas chapter of Communications and Vehicular Technology Society, Richardson, Texas, April 1998.
13. Distributed, Load Balanced Location Management in Cellular Networks." Department of Computer Science, Purdue University, July 1997.

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Works in progress:

Submitted for publication:

1. "Link Scheduling in Wireless Sensor Networks: Distributed Edge-Coloring Revisited."
S.R. Gandham, M. Dawande and R. Prakash.
Submitted to *Journal of Parallel and Distributed Computing (JPDC)*, Elsevier Publications (submitted in February 2007).
2. "An Energy-Efficient Routing Scheme for Wireless Sensor Networks with Multiple Mobile Base Stations."
S.R. Gandham, M. Dawande, R. Prakash and S. Venkatesan.
Submitted to *Operations Research Journal* (submitted in October 2006).
3. "Effect of Virtual Collisions on Channel Utilization in IEEE 802.11e Wireless Local Area Networks."
S. Kuppa, S.-C. Niu and R. Prakash.
Being revised for resubmission to *IEEE Transactions on Wireless Communications*.
4. "Variable Power Broadcasting Using Local Information in Ad Hoc Networks."
A. Chigammi, M. Baysan, K. Sarac and R. Prakash.
Submitted to *Computer Networks (COMNET)*, Elsevier.

In preparation:

1. "The Effect of Mobility on the Lower Bound for Broadcasting in Mobile Ad Hoc Networks."
R. Prakash, Y. Sasson, M. Mohsin, D. Cavin and A. Schiper.
To be submitted to a journal.
2. "Network Classification and MAC Protocols for Cognitive Radio based Multi-hop Wireless Networks."
M. Thoppian, R. Prakash and S. Venkatesan.
To be submitted to a journal.
3. "HEROISM: Harmonious Existence of RadiOs in the ISM band."
Q. Javed, K. Sahu and R. Prakash.
To be submitted to a conference.

U.S. Patent awarded:

- "Clusterhead selection in wireless ad hoc networks"
A.D. Amis and R. Prakash (inventors); Board of Regents, the University of Texas System (assignee).
U.S. Patent No. 6,829,222 (December 7, 2004).

External funding for original investigations:

- *Development of Sensor Hardware and Wireless Network Test Beds*.
Investigators: S. Venkatesan (principal) and Ravi Prakash.
Signal Technology, Plano, TX, (\$48,000) (January 2006 – January 2007). Extension to the contract of previous year.
- *Development of Sensor Hardware and Wireless Network Test Beds*.
Investigators: S. Venkatesan, Ravi Prakash and Neeraj Mittal.
Signal Technology, A Crane Company, Plano, TX, Information Warfare Directorate (Prime: Signal Technology), (\$20,000) (October 2006 – April 2007).
- *Network-Centric Operations and Warfare Modeling and Simulation Integration Center*.
Investigators: S. Venkatesan (principal), Ravi Prakash and Neeraj Mittal.
Rockwell Collins, Inc., Richardson, TX, (\$200,000) (September 2005 – August 2006).

10

- *Development of Sensor Hardware and Wireless Network Test Beds*.
Investigators: S. Venkatesan (principal) and Ravi Prakash.
Signal Technology, Plano, TX, (\$90,000) (May 2005 – February 2007).
- *Research and Development of 3GE-WLAN Seamless Handover for 3GPP Evolution User Equipment*.
Investigators: S. Venkatesan (principal) and Ravi Prakash.
ETRI, South Korea, (\$100,000) (September 2005 – August 2006).
- *Self-configuring Hubs Wireless Networking: RFID Networking on Ships*.
Principal Investigator: Ravi Prakash.
Williams-Pyro, Inc./U.S. Navy, (\$65,000) (September 2004 – June 2006).
- *US-Switzerland Cooperative Research: Reliable Communication Support for Resource Management in Mobile Ad Hoc Networks*.
Principal Investigator: Ravi Prakash.
National Science Foundation, (\$29,668) (September 2004 – August 2006).
- *Low Cost Automatic Shipboard Wireless Configuration Management*.
Principal Investigator: Ravi Prakash.
Williams-Pyro, Inc., Fort Worth, Texas, (\$12,000) (August 2002 – December 2002).
- *CAREER Award: Resource management in mobile ad hoc networks - the spatial dimension*.
Principal Investigator: Ravi Prakash.
National Science Foundation, (\$250,000) (April 15, 2001 – March 31, 2006).
- *CISE Research Resources: Resources for Research in Scalable Parallel Computing and Networking Simulation*.
Investigators: Gopal Gupta (PI), Ravi Prakash, Ovidiu Daescu.
National Science Foundation, (\$63,330) (September 2001 – August 2004).
- *A Study of Strategies for IP Quality of Service*.
Investigators: Biao Chen, G.R. Datatreya, Ravi Prakash, I.-L. Yen, and S.Q. Zheng.
Alcatel Network Systems, Inc., (\$50,000) (January 1999 – December 1999).
- *Routing and Simulations in Satellite Domain of LEO-Based Satellite Networks*.
Principal Investigator: Ravi Prakash.
Nordt Networks, (\$30,000) (October, 1998 – September, 1999).
- *Quorum Based Mobility Management for Ad-Hoc Networking*.
Principal Investigator: Ravi Prakash.
Division of Advanced Networking Infrastructure Research (ANIR) of the National Science Foundation, (\$48,425) (September, 1998 – December, 1999).
- *Design of Mobile Computing and Communication Systems with Mobile Base Stations*.
Principal Investigator: Ravi Prakash.
Division of Computer and Computation Research (CCR) of the National Science Foundation, (\$115,000) (June, 1997 – May, 1999).

Proposals under review:

- *CCF-TF: Cross-Cluster Activities and Beyond: How to exist in harmony and detect neighbors in wireless networks?*
Investigators: Ravi Prakash (Principal), Neeraj Mittal.
National Science Foundation
Submitted on February 10, 2007 (\$49,015).

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Teaching

Ph.D. advisement: graduated students, semester and year of graduation, dissertation title (current designation and place of employment)

1. Mansi Thoppian, Fall 2006, "Medium Access Control Protocols for Cognitive Radio-based Multi-hop Wireless Networks," (Software Engineer, Cisco Systems, Inc., San Jose, California)
2. Shashidhar Rao Gandham, Spring 2006, "Near Optimal Algorithms for Link Scheduling, Routing and Positioning of Mobile Base Stations in Wireless Sensor Networks," (Network Protocol Research Engineer, xG Technology LLC, Fort Lauderdale, Florida)
3. Srikanth Kuppala, Spring 2006, "Characterising the Expected Performance of IEEE 802.11 DCF and its QoS Enhancements," (Software Engineer, Cisco Systems, Inc., Richfield, Ohio)
4. Mansoor Mohsin, Spring 2006, "Reliable Communication in Mobile Ad Hoc Networks," (Software Design Engineer, Microsoft Corporation, Redmond)
5. Aqeel Siddiqui, Summer 2003, "Towards Unification of Clustering Mechanisms for Multi-Cluster Mobile Ad Hoc Networks," (Solutions Manager, Ericsson, Plano)
6. Alan D. Amis, Spring 2003, "D-Cluster Formation and Routing in Mobile Ad Hoc Networks," (Principal Systems Engineer: Networking Technology, Rockwell Collins, Inc., Richardson)
7. Sanket Nesargi, Fall 2002, "Distributed Approaches to Design Network Services in Rapidly Deployable Wireless Networks," (UTRAN Technology Lead, Tektronix, Richardson)

Ph.D. advisement: current students

1. Shan Shan.

M.S. thesis advisement

1. Anub Ghosh, Spring 2003, "Implementation of a MANET on a Wired Network and Performance Study of AODV."
2. Dimple Kuriakose, Spring 2003, "Study of Unidirectional Links in a MANET Testbed with Wireless Links Emulation on a LAN."
3. Shashidhar Rao Gandham, Fall 2002, "Energy-Efficient Schemes for Wireless Sensor Networks with Multiple Mobile Base Stations."
4. Mansi Thoppian, Fall 2002, "A Protocol for Dynamic Configuration of Nodes in Manets."
5. Daniel Russo, Spring 2002, "A Source Sequenced Link State Routing Protocol for Mobile Ad Hoc Networks with Unidirectional Wireless Links."
6. Alan D. Amis, Fall 1999, "Max-Min D-Cluster Formation in Wireless Ad Hoc Networks."

M.S. thesis advisement: work in progress

1. Kunal Sahu.

Bachelors honors advisement:

1. Anita M.G. Hussain, December 1997, "Total Ordering of Messages in Distributed Networks."
2. Saira Suleman, May 2000, "Load Balanced Clustering in Mobile Ad Hoc Networks."

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Classroom teaching:

Course	Semester	Time	Enrollment
CS 6390, Computer Networks	Fall 97	TR 12:30-1:45 pm	42
CS 8302, Mobile Comm. & Comp.	Fall 97	TR 5:30-6:45 pm	20
CS 6380, Distributed Computing	Spring 98	TR 7:00-8:15 pm	21
CS 6380, Distributed Computing	Fall 98	TR 5:30-6:45 pm	57
CS 6392, Mobile Computing Systems	Fall 98	TR 2:00-3:15 pm	5
CS 6380, Distributed Computing	Spring 99	MW 12:30-1:45 pm	15
CS 6380, Distributed Computing	Spring 99	MW 7:00-8:15 pm	48
CS 3345, Algorithm Analysis and Data Structures	Fall 99	MW 7:00-8:15 pm	52
CS 6392, Mobile Computing Systems	Fall 99	MW 5:30-6:45 pm	23
CS 3345, Algorithm Analysis and Data Structures	Spring 2000	TR 12:30-1:45 pm	35
CS 6378, Advanced Operating Systems	Spring 2000	TR 5:30-6:45 pm	72
CS 6390, Advanced Computer Networks	Summer 2000	MW 8:00-9:45 pm	60
CS 6386, Telecommunications Software Design	Summer 2000	TR 8:00-9:45 pm	60
CS 3345, Algorithm Analysis and Data Structures	Fall 2000	MW 9:30-10:45 am	55
CS 6392, Mobile Computing Systems	Fall 2000	MW 5:30-6:45 pm	37
CS 6378, Advanced Operating Systems	Spring 2001	MW 5:30-6:45 pm	68
CS 6390, Advanced Computer Networks	Fall 2001	MW 2:00-3:15 pm	55
CS 6392, Mobile Computing Systems	Fall 2001	MW 4:00-5:15 pm	57
CS 6378, Advanced Operating Systems	Spring 2002	MW 9:30-10:45 am	56
CS 6378, Advanced Operating Systems	Fall 2002	TR 2:00-3:15 pm	16
CS 6392, Mobile Computing Systems	Fall 2002	MW 4:00-5:15 pm	51
CS 6378, Advanced Operating Systems	Spring 2003	MW 4:00-5:15 am	58
CS 4348, CV Honors: Operating Systems Concepts	Spring 2003	2:00-3:15 pm	10
CS 6378, Advanced Operating Systems	Fall 2003	MW 11:00 am - 12:15 pm	40
CS 6392, Mobile Computing Systems	Fall 2003	MW 4:00-5:15 pm	31
CS 6378, Advanced Operating Systems	Spring 2004	MW 11:00 am - 12:15 pm	24
CS 6378, Advanced Operating Systems	Fall 2004	TR 11:00 am - 12:15 pm	22
CS 6392, Mobile Computing Systems	Fall 2004	TR 9:30-10:45 am	19
CS 4390, Computer Networks	Spring 2005	TR 9:30-10:45 am	23
CS 6378, Advanced Operating Systems	Fall 2005	TR 11:00 am - 12:15 pm	15
CS 6392, Mobile Computing Systems	Fall 2005	TR 9:30-10:45 am	13
CS 6378, Advanced Operating Systems	Spring 2006	TR 4:00-5:15 pm	40
CS 6378, Advanced Operating Systems	Summer 2006	MW 10:00-12:45 pm	17
CS 4390, Computer Networks	Fall 2006	TR 4:00-5:15 pm	19
CS 6392, Mobile Computing Systems	Fall 2006	TR 5:30-6:45 pm	23
CS 6378, Advanced Operating Systems	Spring 2007	TR 10:00-11:15 am	33

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Administration and curricular development:

1. **Senator:** University of Texas at Dallas, 2003-2004, 2005-2006, 2006-2007.
2. **Member, Academic Council:** University of Texas at Dallas, 2006-2007.
3. **Grade change at the graduate level:** Successfully led the effort to change the grading scheme for graduate courses at U.T. Dallas during the 2006 calendar year.
4. **Chairman, Computer Equipment Committee:** Department of Computer Science, January 2006 - present.
5. **Member of the Computer Equipment Committee:** Department of Computer Science, November 2000 - August 2003, September 2005 - present.
6. **Chairman of MS-Research Track Committee:** Department of Computer Science, September 2004 - April 2006.
7. **Member of Ph.D. Committee:** Department of Computer Science, September 2003 - December 2005.
8. **Member of the MS-Research Committee:** Department of Computer Science, September 2002 - September 2004.
9. **Faculty Secretary:** Department of Computer Science, September 1997 - August 2003.
10. **Member of the Telecommunications Engineering Governing Committee:** Erik Jonsson School of Engineering and Computer Science, August 2003 - present.
11. **Member of the Telecommunications Engineering Committee:** Erik Jonsson School of Engineering and Computer Science, August 1999 - July 2001.
12. **Member of the Graduate Admissions Committee:** Department of Computer Science, September 2002 - August 2003, June 1999 - August 2000.
13. **Member of the Computer Equipment Committee:** Erik Jonsson School of Engineering and Computer Science, November 1997 - November 2000.
14. **Member of Faculty Search Committee:** Department of Computer Science, December 2001 - May 2002, December 2004 - May 2005.
15. **Member of Telecommunications Engineering curriculum development and admissions committee:** School of Engineering, September 1998 - July 2001.
16. **Member of Computer Science curriculum committee:** September 1997 - August 1998.
17. **Development of manuscript/course material for CS 6392, Mobile Computing Systems:** Fall 1997, Fall 1998, and Fall 1999, Fall 2004, Fall 2005, Fall 2006.

Service:

1. **Associate Editor:** IEEE Transactions on Mobile Computing, August 2005 - present.
2. **Co-chair, Technical Program Committee:** IEEE Symposium on Reliable Distributed Systems (SRDS 2004), Florianopolis, Brazil, October 2004.
3. **Co-chair, Technical Program Committee:** IEEE Emerging Telecommunication Technologies Conference (ETTC 2003), Richardson, Texas, September 2003.
4. **Co-chair, Technical Program Committee:** ACM Workshop on Principles of Mobile Computing (POMC 2002), Toulouse, France, October 2002.

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5. **Co-chair, Technical Program Committee:** IEEE Emerging Telecommunication Technologies Conference (ETTC 2002), Richardson, Texas, September 2002.
6. **Program Committee Vice Chair:** Heterogeneous and Mobile Computing track, International Conference on Distributed Computing Systems (ICDCS'02), Vienna, Austria, July 2002.
7. **Workshop Co-Chair:** NSF-ERCIM Workshop on Research in Mobile Middleware, Vienna, Austria, July 2002.
8. **Registration Chair:** IEEE Symposium on Reliable Distributed Systems (SRDS), October 2001.
9. **Panelist:** proposal review panels of National Science Foundation.
10. **Registration Chair:** ACM Symposium on Mobile Computing (Mobicom), 1998.
11. **Program Committee Member:** SRDS'98, ASSET'99, ICDCS'99, IEEE Emerging Technologies Symposium on Wireless Communications and Systems '99, Workshop on Mobile Computing (ISPAN'99), International Workshop on Group Communication (ICGP'99), Dial-M for Mobility'99, SRDS-2000, ASSET-2000, ICCCN-2000, IEEE ETS-2000, ICDCS-2001, ISCA PDCS-2001, IEEE ETS-2001, ICDCS-2002, Pervasive Computing 2003, INFOCOM-2004, SRDS-2004, ICDCS-2005, SRDS-2005, IWDC-2005, LADC-2005, IWDDS-2006, SSS-2006, MASS-2007.
12. **Publicity Co-Chair:** ASSET'99.
13. **Session Chair:** ASSET'98, SRDS'98, ASSET-2000.
14. **Technical Program Co-Chair:** IEEE Dallas chapter of Communications and Vehicular Technology Society, 1998-2000. During the year 1999-2000 this chapter won the *Chapter of the Year* among the 130 chapters of the society world-wide.
15. **Organizer and Moderator of Panel Discussion:** ASSET'98, Emerging Technologies Symposium '99.
16. **Selected journals and conferences for which served as reviewer:**
 - (a) IEEE Transactions on Mobile Computing
 - (b) IEEE Transactions on Computers
 - (c) IEEE Transactions on Parallel and Distributed Systems
 - (d) Theoretical Computer Science (special issue on Distributed Algorithms)
 - (e) IEEE/ACM Transactions on Networking
 - (f) IEEE Journal in Selected Areas of Communication
 - (g) Journal of Parallel and Distributed Computing
 - (h) Distributed Computing Journal
 - (i) ACM/Baltzer Journal on Mobile Networks and Applications
 - (j) Information Processing Letters
 - (k) International Conference on Distributed Computing Systems
 - (l) ACM Symposium on Principles of Distributed Computing
 - (m) International Conference on Parallel Processing
 - (n) Symposium on Parallel and Distributed Processing
 - (o) International Symposium on High Performance Distributed Computing
 - (p) International Conference on Computer Communications and Networks
 - (q) International Mobile Computing Workshop
 - (r) IEEE Workshop on Discrete Algorithms for Mobility, 1999
 - (s) IEEE Symposium on Reliable Distributed Systems, 1998 and 2000.
 - (t) IEEE International Conference on Computer Communications and Networks, 1997 and 2000.
 - (u) IEEE Computer
17. **Consultation:** Williams-Pyro, Inc.

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BALAJI RAGHAVACHARI

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Research Interests

Design and analysis of algorithms, Graphs, Telecommunication networks, Combinatorial optimization, Network design, Approximation algorithms, Databases, Web Technologies.

Educational History:

Ph.D. (Computer Science), 1992, Pennsylvania State University, University Park, PA.
M.S. (Computer Science), 1992, Pennsylvania State University, University Park, PA.
B.Tech. (Mechanical Engineering), 1984, Indian Institute of Technology, Madras, India.

Employment History:

Professor (CS)	Sep 2003 -	University of Texas at Dallas.
Associate Professor (CS)	Sep 1999 - Aug 2003	University of Texas at Dallas.
Assistant Professor (CS)	Sep 1993 - Aug 1999	University of Texas at Dallas.
Post-doctorate	Aug 1992 - Aug 1993	Johns Hopkins University, MD.
Graduate Assistant	Aug 1987 - Jul 1992	Penn State University, PA.
Graduate Assistant	Jan 1987 - May 1987	SUNY Albany, NY.
Deputy Engineer	Jun 1984 - Dec 1986	Bharat Electronics Ltd., India.

Professional recognitions, honors, memberships, etc.

Outstanding Service Award, Erik Jonsson School, UTD, 2003.
Program committee member, Dial M for Mobility (DIALM), 2000.
Member of Editorial Board, Journal of Graph Algorithms and Applications 1999-2004.
Outstanding teacher in CS, University of Texas at Dallas, 1999.
Invited speaker, DIMACS Workshop on Approx. Algorithms, 1993.
Invited speaker, ORSA/TIMS Meeting, San Francisco, 1992.
Graduate Fellowship, Penn State, 1992.
August and Ruth Horrey Fellowship, Penn State, 1991.
National Talent Search Scholarship (India), 1979-84.
Scholarship, National Merit Scholar (India), 1978.
Member, Association for Computing Machinery, since 1990.

Statement on original accomplishment in research

My current research projects fall into two distinct and equally fruitful categories: the design and development of algorithms for fundamental problems in optimization and network design, and, design and development of web-based information systems. Short descriptions of the two focus areas follow.

Algorithms for Optimization problems and Network design

My primary research interests are in the area of design and analysis of algorithms for combinatorial optimization problems in graphs and networks. Most of my contributions to date have been in designing approximation algorithms for intractable (NP-hard) problems in discrete optimization. Many optimization problems that occur in practice are NP-hard, such as the traveling salesman and network design problems. These problems however, do have wide practical applications and therefore require reasonably efficient solutions. One of the ways in which one can overcome the NP-hardness hurdle of these problems is to look for approximation algorithms that seek sub-optimal, yet provably close to optimal, solutions. My focus thus is to design algorithms that are both practical and provably good. My work in this area of research has thus far been supported by two grants from the National Science Foundation. I plan on submitting another grant proposal to NSF early next year.

Some of my major accomplishments in this arena include:

- Approximation algorithms for various connectivity problems. Some of the recent results are: (i) a result obtained jointly with Raja Jothi and Subramanian Varadarajan (UTD students) is an algorithm that guarantees an approximation ratio of $5/4$ for the 2-edge-connectivity problem. This result has been sought by several researchers in the area for many years now. The paper was presented at the ACM/SIAM Symposium on Discrete Algorithms (SODA), at Baltimore, MD in January 2003. (ii) Recently, with Prabhakar Gubbala, I have obtained an improved approximation algorithm for the 2-vertex-connectivity problem. Though the above two problems share some similarity, we had to find several new techniques to solve the vertex-connectivity case. The latter paper has been submitted to IPCO 2005, a top conference in the area of combinatorial optimization. This paper forms the basis of Prabhakar's doctoral dissertation, and he is expected to graduate in August 2005.
- Approximation algorithms for the mixed and asymmetric versions of the postman problem. Joint work with Jeyakesavan Veerasamy [3], that has appeared in the SIAM Journal on Discrete Mathematics and in 1999 SODA.
- Algorithms for obtaining low-weight, degree-3 and degree-4 trees for points in the plane. A paper with Samir Khuller and Neal Young appeared in the SIAM Journal of

Computing [10]. Recently, Raja Jothi, a Ph.D. student working under my supervision, and I, have improved the results significantly using new methods. The paper has been submitted for publication.

- An algorithm that showed how to find a tree in any graph that simultaneously approximates a minimum spanning tree and a shortest path tree [12]. Joint work with Samir Khuller and Neal Young, that appeared in *Algorithmica*.
- A polynomial-time algorithm showing that the minimum-degree spanning tree problem (and its Steiner extension) can be approximated to within one of optimal [14]. Joint work with Martin Furer, that was invited for inclusion in a special issue of the *Journal of Algorithms* devoted to the best papers of SODA 1992.

My papers have appeared in all the major international conferences devoted to topics of research interest to me, including ACM Symposium on Theory of Computing (STOC), IEEE Symposium on Foundations of Computer Science (FOCS), ACM-SIAM Symposium on Discrete Algorithms (SODA), International Colloquium on Automata, Languages and Programming (ICALP), Integer Programming and Combinatorial Optimization (IPCO), Symposium on Parallel Algorithms and Architectures (SPAA), and Foundations of Software Technology and Theoretical Computer Science (FSTTCS), and in top area journals such as *Journal of Algorithms*, *SIAM Journal on Computing*, *Algorithmica* and *SIAM Journal on Discrete Mathematics*.

E-Plan: System Design and Development

I have been working with the U.S. Environmental Protection Agency (EPA) and the Texas Commission on Environmental Quality (TCEQ) over the last four years in an effort to develop a system for providing relevant and timely delivery of information critically needed during emergencies involving chemical or other spills or accidents. The system is aimed at storing chemical inventories of, and appropriate response guidelines provided by, facilities housing hazardous materials, together with contact details in cases of emergencies. This involves the design and development of a web-based information system that is ultra-fast, extra-secure, highly-reliable and always available. While the project was started in the fall of 2000, well before the 9/11 tragedy, it has become exponentially more relevant since then, due to the renewed emphasis on homeland security. The regional office of the EPA has designated this project as one of their flagship projects and is pushing for its nationwide deployment. Collaborators from UTD include Dr. Doug Harris and Dr. Gopal Gupta (co-PI's), Dr. Radha Krishnan and several graduate students.

The project (called E-Plan) was initially funded for the period of October 2000 to August 2001, in the amount of \$374,000. The charter during this phase was to build a prototype or proof-of-concept system. We successfully demonstrated the prototype system, and received enthusiastic support from several government agencies such as TCEQ and the U.S. Coast

guard. The project then moved into a pilot phase (2001-2002), with an additional funding of \$920,000. During this phase, our system was deployed in Corpus Christie, Iberville Parish in Louisiana and Plano. Emergency responders (such as firemen, police, federal and local government incident managers) were trained to use the new facility. The system currently hosts information on thousands of facilities containing thousands of chemicals and has over 600 users. Currently, the project has expanded to include facilities in several big cities in Texas including Dallas and Houston, and the (entire) states of Arkansas. This year, the project has received just under a million dollars of funding.

The project is providing a platform for building long-term relationships between UTD and EPA, and is therefore likely to be a continuing source of research funds for UTD. We have received about two million dollars in funding for this project thus far, with another half million budgeted for this year. The target of the next several years is the nation-wide deployment of E-Plan, giving UTD national attention and pre-eminence in the Emergency Response arena, sure to be the focus of Homeland Security efforts. Already, E-Plan is a major component of the newly constituted Emergency Preparedness Center housed within the Digital Forensics and Emergency Preparedness Institute of the Erik Jonsson School of Engineering and Computer Science at UTD. Training curricula based upon E-Plan, and outreach to the First Responder community are two significant off-shoots of the project. The expertise base being built as a consequence of E-Plan and associated activities are also invaluable.

E-Plan already uses cutting-edge technology to deliver performance and guarantee security. My goal in the next year is to ensure the incorporation of the high reliability and availability components to gear up for its nation-wide deployment anticipated in the near future. As in the past, I plan on getting the next phase of the E-Plan project completed in a timely manner that exceeds the expectations of the sponsors. It is worth noting here that the E-Plan venture was experimented with two other Universities by EPA, before UTD was brought in. It is gratifying to note that the project now is an unqualified technical success, requiring only the final political and logistical muzzle to translate this into a nationally acclaimed venture. All current field indications are that this hope is not misplaced. Pilot site users and press releases all uniformly laud the effort as both fulfilling a critical need and advancing the state of the art significantly. The large amount of time that I have spent over the last few years have paved the way (along with the hard work of many others) for making this project successful.

Publications

Articles in refereed journals:

1. R. Jothi and B. Raghavachari. *Approximating the k-traveling repairman problem with repairs*. To appear in the Journal of Discrete Algorithms, Elsevier Press.
2. C. Gong, K. Sarac, O. Descu, B. Raghavachari, and R. Jothi. *Load balanced agent activation for value added network services*. Computer Communications, Volume 29, Number 11, pages 1905-1916, Elsevier Press, July 2006.
3. R. Jothi and B. Raghavachari. *Approximation algorithms for the capacitated minimum spanning tree problem and its variants in network design*. ACM Transactions on Algorithms, Volume 1, Number 2, pages 265-282, 2005.
4. J. Wang, V. Vokarane, R. Jothi, X. Qi, B. Raghavachari and J. Jue. *Dual-homing protection in IP-over-WDM networks*. IEEE/OSA Journal of Lightwave Technology, Volume 23, Number 10, pages 3111-3124, 2005.
5. P. N. Klein, R. Krishnan, B. Raghavachari, and R. Ravi. *Approximation algorithms for finding low-degree subgraphs*. Networks, Volume 44, Number 3, pages 203-215, 2004.
6. R. Jothi and B. Raghavachari. *Survivable network design: the capacitated minimum spanning network problem*. Information Processing Letters, Volume 91, Number 4, pages 183-190, 2004.
7. M. Charikar, S. Khuller and B. Raghavachari. *Algorithms for capacitated vehicle routing*. SIAM Journal on Computing, Volume 31, Number 3, pages 665-682, 2001.
8. N. Guttman-Beck, R. Hassin, S. Khuller and B. Raghavachari. *Approximation algorithms with bounded performance guarantees for the clustered traveling salesman problem*. Algorithmica, Volume 28, pages 422-437, 2000.
9. B. Raghavachari and J. Veerasamy. *A $3/2$ -approximation algorithm for the mixed postman problem*. SIAM Journal on Discrete Mathematics, Volume 12, Number 4, pages 425-433, 1999.
10. S.P. Fekete, S. Khuller, M. Klemmstein, B. Raghavachari and N. Young. *A network-flow technique for finding low-weight bounded-degree spanning trees*. Journal of Algorithms, Volume 24, pages 310-324, 1997.

11. F. Harary and B. Raghavachari. *The e-mail gossip number and the connected domination number*. Applied Mathematics Letters, Volume 10, Number 4, pages 15-17, 1997.
12. M. Fürer and B. Raghavachari. *Parallel edge coloring approximation*. Parallel Processing Letters, Volume 6, Number 3, pages 321-329, 1996.
13. S. Khuller, B. Raghavachari and A. Rosenfeld. *Landmarks in graphs*. Discrete Applied Mathematics, Volume 70, Number 3, pages 217-229, 1996.
14. S. Khuller and B. Raghavachari. *Improved approximation algorithms for uniform connectivity problems*. Journal of Algorithms, Volume 21, pages 434-450, 1996.
15. S. Khuller, B. Raghavachari and N. Young. *On strongly connected digraphs with bounded cycle length*. Discrete Applied Mathematics, Volume 69, Number 3, pages 281-289, 1996.
16. S. Khuller, B. Raghavachari and N. Young. *Low degree spanning trees of small weight*. SIAM Journal on Computing, Volume 25, pages 355-368, 1996.
17. S. Khuller, B. Raghavachari and N. Young. *Approximating the minimum equivalent digraph*. SIAM Journal on Computing, Volume 24, pages 859-872, 1995.
18. S. Khuller, B. Raghavachari and N. Young. *Balancing minimum spanning and shortest path trees*. Algorithmica, Volume 14, pages 305-321, 1995.
19. M. Fürer and B. Raghavachari. *An efficient NC algorithm for finding Hamiltonian cycles in dense directed graphs*. Journal of Algorithms, Volume 18, pages 203-220, 1995.
20. M. Fürer and B. Raghavachari. *Approximating the minimum degree Steiner tree to within one of optimal*. Journal of Algorithms, Volume 17, pages 409-423, 1994.
21. M-Y. Kao, M. Fürer, X. He and B. Raghavachari. *Optimal parallel algorithms for straight-line grid embeddings of planar graphs*. SIAM Journal on Discrete Mathematics, Volume 7, pages 632-646, 1994.
22. S. Khuller, B. Raghavachari and N. Young. *Designing multi-commodity flow trees*. Information Processing Letters, Volume 50, pages 49-55, 1994.
23. W. Miller, M. Boguski, B. Raghavachari, Z. Zhang and R. C. Hardison. *Constructing aligned sequence blocks*. Journal of Computational Biology, Volume 1, pages 51-64, 1994.
24. Z. Zhang, B. Raghavachari, R. C. Hardison and W. Miller. *Chaining multiple-aligned blocks*. Journal of Computational Biology, Volume 1, pages 217-226, 1994.

Articles appearing as chapters in edited volumes:

1. Samir Khuller, Balaji Raghavachari, and Neal Young. *Greedy Methods*. To appear in "Approximation Algorithms and Metaheuristics," Teofilo F. Gonzalez (ed.), CRC Press, 2006.
2. Farokh Bastani and Balaji Raghavachari. *Data Engineering*. To appear in "Encyclopedia of Distributed Computing," Kluwer Academic Press.
3. S. Khuller and B. Raghavachari. *Basic graph algorithms*. In "Algorithms and Theory of Computation Handbook," Mikhail J. Atallah (ed.), CRC Press, Chapter 6, 1999.
4. S. Khuller and B. Raghavachari. *Advanced combinatorial algorithms*. In "Algorithms and Theory of Computation Handbook," Mikhail J. Atallah (ed.), CRC Press, Chapter 7, 1999.
5. S. Khuller and B. Raghavachari. *Graph and network algorithms*. In "The Computer Science and Engineering handbook," Allen B. Tucker (ed.), CRC Press, pages 203-225, 1997.
6. S. Khuller and B. Raghavachari. *Graph and network algorithms*. ACM Computing Surveys, Volume 28, No. 1, pages 43-45, 1996.
7. B. Raghavachari. *Algorithms for finding low degree structures*. In "Approximation algorithms," Dorit S. Hochbaum (ed.), PWS Publishers, pages 266-295, 1996.

Presentations in refereed conferences:

1. P. Gubbala and B. Raghavachari. *Approximation algorithms for the minimum cardinality two-connected spanning subgraph problem*. in Proc. Eleventh Conference on Integer Programming and Combinatorial Optimization (IPCO), Berlin, pp. 422-436, Jun 8-10, 2005.
2. A. Bansal, K. Patel, G. Gupta, B. Raghavachari, J. Staves, and D. Harris. *Towards intelligent services: a case study in chemical emergency response*. in Proc. International Conference on Web Services, IEEE Press, pp. 751-758, Jun 2005.
3. C. Gong, O. Daescu, R. Jothi, B. Raghavachari, and K. Sarac. *Load-balanced for reliable multicast*. in Proc. 3rd IASTED Intl. Conference on Communications, Internet, and Information Technology (CIIT), US Virgin Islands, Nov 22-24, 2004.

4. R. Jothi and B. Raghavachari. *Protein folding in hydrophobic-hydrophilic model: how good is theory in practice?*. Poster Presentation at the 7th Annual Conference on Computational Genomics (CG), Reston, VA, Oct 21-24, 2004.
5. R. Jothi and B. Raghavachari. *Degree-bounded minimum spanning trees*. in Proc. 16th Canadian Conference on Computational Geometry (CCCG), pp. 192-195, Montreal, Canada, Aug 9-11, 2004.
6. R. Jothi and B. Raghavachari. *Approximation algorithms for the capacitated minimum spanning tree problem and its variants in network design*. in Proc. 31st International Colloquium on Automata, Languages and Programming (ICALP), pp. 805-818, Springer-Verlag LNCS 3142, Turku, Finland, July 12-16, 2004.
7. R. Jothi and B. Raghavachari. *Improved approximation algorithms for the single-sink buy-at-bulk network design problems*. in Proc. 9th Scandinavian Workshop on Algorithm Theory (SWAT), pp. 336-348, Springer-Verlag LNCS 3111, Humlebaek, Denmark, July 8-10, 2004.
8. V. Vokkarane, J. Wang, R. Jothi, X. Qi, B. Raghavachari and J. Jue. *Dynamic dual-homing protection in WDM mesh networks*. in Proc. IEEE International Conference on Communications (ICC), Vol. 3, pp. 1644-1648, Paris, June 2004.
9. R. Jothi and B. Raghavachari. *Minimum latency tours and the k-traveling repairman problem*. in Proc. Latin American Theoretical Informatics (LATIN), Springer-Verlag LNCS 2976, pp. 423-433, Buenos Aires, Argentina, April 4-9, 2004.
10. P. Gubbala and B. Raghavachari. *Finding k-connected subgraphs with minimum average weight*. in Proc. Latin American Theoretical Informatics (LATIN), Springer-Verlag LNCS 2976, pp. 212-221, Buenos Aires, Argentina, April 4-9, 2004.
11. O. Daescu, R. Jothi, B. Raghavachari, and K. Sarac. *Optimal placement of NAK suppressing agents for reliable multicast: a partial deployment case*. in Proc. 19th ACM Symposium on Applied Computing (SAC), Cyprus, pp. 334-338, March 2004.
12. R. Jothi and B. Raghavachari. *Survivable network design: the capacitated minimum spanning network problem*. in Proc. 7th INFORMS Telecommunications Conference (Telecom), Boca Raton, Florida, March 7-10, pp. 50-52, 2004.
13. K. Deen, R. Jothi and B. Raghavachari. *Multi-homing protection in WDM mesh networks*. in Proc. 7th INFORMS Telecommunications Conference (Telecom), Boca Raton, Florida, March 7-10, 2004.
14. R. Jothi and B. Raghavachari. *Revisiting Esau-Williams' algorithm: on the design of local access networks*. in Proc. 7th INFORMS Telecommunications Conference (Telecom), Boca Raton, Florida, March 7-10, pp. 104-107, 2004.

15. R. Jothi and B. Raghavachari. *Placement of proxy servers to support server-based reliable multicast*. in Proc. 3rd IEEE International Conference on Networking (ICN), ISBN 0-86341-326-9, French Caribbean, Feb 29-Mar 4, 2004.
16. R. Jothi and B. Raghavachari. *Dynamic capacitated minimum spanning trees*. in Proc. 3rd IEEE International Conference on Networking (ICN), ISBN 0-86341-326-9, French Caribbean, Feb 29-Mar 4, 2004.
17. R. Jothi and B. Raghavachari. *Design of local access networks*. in Proc. 15th IASTED Intl. Conf. on Parallel and Distributed Computing and Systems (PDCS), Marina Del Rey, CA, Nov 3-5, pages 883-888, 2003.
18. R. Jothi and B. Raghavachari. *Leave no stone unturned: improved approximation algorithm for degree-bounded minimum spanning trees*. DIMACS Workshop on Geometric Optimization, New Brunswick, NJ, May 19-21, 2003.
19. R. Jothi, B. Raghavachari and S. Varadarajan. *A 5/4-approximation algorithm for minimum 2-edge-connectivity*. in Proc. 14th ACM-SIAM Symposium on Discrete Algorithms (SODA), ACM Press, pages 725-734, Baltimore, MD, Jan 12-14, 2003.
20. B. Raghavachari and R. Krishnan. *The directed minimum-degree spanning tree problem*. Proceedings of the Foundations of Software Technology and Theoretical Computer Science (FSTTCS) conference, Bangalore (India), December 13-15, 2001, Lecture Notes in Computer Science 2245, Springer 2001.
21. B. Raghavachari and J. Veerasamy. *Approximation algorithms for the asymmetric postman problem*. 10th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), January 1999.
22. S. Khuller, B. Raghavachari and A. Zhu. *A uniform framework for approximating weighted connectivity problems (short paper)*. 10th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), January 1999.
23. N. Guttmann-Beck, R. Hassin, S. Khuller and B. Raghavachari. *Approximation algorithms with bounded performance guarantees for the clustered traveling salesman problem*. 18th International Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS), December 1998.
24. M. Charikar and B. Raghavachari. *The finite capacity dial-a-ride problem*. 39th Annual Symposium on Foundations of Computer Science (FOCS), November 1998.
25. B. Raghavachari and J. Veerasamy. *Approximation algorithms for mixed postman problem*. 6th Conference on Integer Programming and Combinatorial Optimization (IPCO), June 1998.
26. M. Charikar, S. Khuller and B. Raghavachari. *Algorithms for capacitated vehicle routing*. 30th Annual ACM Symposium on Theory of Computing (STOC), 1998.
27. S.P. Fekete, S. Khuller, M. Klemmstein, B. Raghavachari and N. Young. *A network-flow technique for finding low-weight bounded-degree spanning trees*. 5th International Integer Programming and Combinatorial Optimization Conference (IPCO), June 1996.
28. S. Khuller and B. Raghavachari. *Improved approximation algorithms for uniform connectivity problems*. 27th Annual ACM Symposium on the Theory of Computing (STOC), May 1995.
29. S. Khuller, B. Raghavachari and N. Young. *Low degree spanning trees of small weight*. 26th Annual ACM Symposium on the Theory of Computing (STOC), 1994.
30. S. Khuller, B. Raghavachari and N. Young. *Approximating the minimum equivalent digraph*. 5th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA), 1994.
31. S. Khuller, B. Raghavachari and N. Young. *Designing multi-commodity flow trees*. 3rd Workshop on Algorithms and Data Structures (WADS), August 1993.
32. S. Khuller, B. Raghavachari and N. Young. *Balancing minimum spanning and shortest path trees*. 4th ACM-SIAM Symposium on Discrete Algorithms (SODA), January 1993.
33. R. Ravi, B. Raghavachari and P. N. Klein. *Approximation through local optimality: designing networks with small degree*. 12th Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS), December 1992.
34. M. Fürer and B. Raghavachari. *Parallel edge coloring approximation*. 30th Allerton Conference on Communication, Control and Computing, October 1992.
35. M. Fürer, X. He, M.-Y. Kao and B. Raghavachari. *$O(n \log \log n)$ -work parallel algorithms for straight-line grid embeddings of planar graphs*. 4th ACM Symposium on Parallel Algorithms and Architectures (SPAA), June 1992.
36. M. Fürer and B. Raghavachari. *Approximating the minimum degree spanning tree to within one from the optimal degree*. 3rd ACM-SIAM Symposium on Discrete Algorithms (SODA), January 1992.
37. M. Fürer and B. Raghavachari. *Contracting planar graphs efficiently in parallel*. 11th Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS), December 1991.

38. M. Fürer and B. Raghavachari. *An efficient NC algorithm for finding Hamiltonian cycles in dense directed graphs*. 18th International Colloquium on Automata, Languages and Programming (ICALP), July 1991.

39. M. Fürer and B. Raghavachari. *An NC approximation algorithm for the minimum degree spanning tree problem*. 28th Allerton Conference on Communication, Control and Computing, October 1990.

Work in progress:

Submitted for publication:

1. P. Gubbala and B. Raghavachari. *Finding k -connected subgraphs with minimum average weight*. Submitted to *SIAM Journal on Discrete Mathematics*.
2. P. Gubbala and B. Raghavachari. *A $4/3$ -approximation algorithm for minimum 3 -edge-connectivity*. Submitted for publication.

In preparation:

1. M. Charikar and B. Raghavachari. *The finite capacity dial-a-ride problem*. To be submitted to the *SIAM Journal on Computing*.
2. S. Khuller, B. Raghavachari and A. Zhu. *A uniform framework for approximating weighted connectivity problems*. To be submitted.

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External funding

- Title: Hazardous materials contingency planning and emergency response information system.
Principal investigators: B. Raghavachari, E.D. Harris and G. Gupta.
Funding organization: U.S. Environmental Protection Agency.
System-wide deployment phase, 09/03-08/05: \$945,000.
Production phase, 09/02-08/03: \$550,000.
Pilot phase, 09/01-08/02: \$920,000.
Proof of concept, 10/00-08/01: \$374,700.
- Title: Approximation algorithms for network-design and transportation problems.
Principal investigator: B. Raghavachari.
Funding organization: National Science Foundation.
Period: September 15, 1999 - August 31, 2003.
Amount: \$165,000.
- Title: Approximation algorithms for hard problems in discrete optimization.
Principal investigator: B. Raghavachari.
Funding organization: National Science Foundation.
Period: September 1, 1994 - August 31, 1998.
Amount: \$65,860.
- Title: Project.
Principal investigator: B. Raghavachari.
Funding organization: J. P. Systems, Inc.
Period: January 15, 1998 - April 30, 1998.
Amount: \$5,693.
- Title: Project.
Principal investigator: B. Raghavachari.
Funding organization: Advanced Telemarketing Co.
Period: January 16, 1996 - May 31, 1996.
Amount: \$6,185.

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Teaching

Statement on teaching:

I enjoy teaching and I take my job seriously. I encourage my students to ask questions and participate in discussions. I also ask questions frequently to test their understanding. I use the feedback that I receive from the students to improve my teaching efforts. I stress both theoretical and practical aspects of issues in my classes and try to achieve a good balance between the two.

I strive to be a good teacher and mentor for our students. My efforts are reflected in the evaluation given by the students. My scores are usually well above 4 (on a 5-point scale), and often around 4.5 (usually 90th percentile).

Classes taught

Algorithms, Database design, Data structures, Compilers, Unix, Parallel processing.

Doctoral advisement/direction:

1. Jeyakesavan Veerasamy, Spring 1999, Approximation Algorithms for Postman Problems (received best dissertation award in CS that year).
2. Vladlena Benson (co-advisor: Prof. Simeon Ntafos), Fall 2001, Remote approach to database content observation.
3. Don Montgomery, August 2003, The low-power optical network.
4. Raja Iothi, August 2004, Approximation algorithms for single-sink edge installation problems and other graph problems.
5. Prabhakar Gubbala, December 2006, Problems in graph connectivity.

Master's advisement/direction:

1. Raghavendra Thodime
2. Harish Pursnani
3. Mohar Bhise

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Classroom teaching:

Semester	Course number and name	Enrollment	Evaluation
Fal 06	CS 6363, Computer Algorithms	30	4.2
Fal 05	CS 6363, Computer Algorithms	21	4.3
Spr 05	CS 6360, Database Design	29	4.54
Fal 04	CS 4347, Database systems	9	4.06
Spr 04	CS 6363, Computer algorithms	12	4.6
Fal 03	CS 6363, Computer algorithms	11	4.3
Fal 03	CS 4347, Database systems	10	4.5
Spr 03	CS 6363, Computer algorithms	51	3.83
Fal 02	CS 6363, Computer algorithms	55	3.36
Spr 02	CS 6363, Computer algorithms	63	4.6
Fal 01	CS 6360, Database Design	61	3.86
Spr 00	CS 6360, Database Design	60	4.45
Spr 00	CS 6363, Computer algorithms	61	4.38
Fal 99	CS 6360, Database Design	48	4.39
Fal 99	CS 4349, Advanced Data Structures	51	3.56
Spr 99	CS 6353, Compiler Construction	12	4.6
Spr 99	CS 6363, Computer algorithms	51	4.6
Fal 98	CS 6360, Database Design	55	4.6
Fal 98	CS 6363, Computer Algorithms	32	4.7
Spr 98	CS 6353, Compiler Construction	14	4.5
Spr 98	CS 6360, Database Design	57	4.6
Fal 97	CS 5343, Data Structures and Algorithms	58	4.2
Fal 97	CS 6363, Computer Algorithms	21	4.5
Spr 97	CS 5343, Data Structures and Algorithms	74	4.4
Spr 97	CS 6353, Compiler Construction	43	4.3
Fal 96	CS 6353, Compiler Construction	50	4.3
Fal 96	CS 4375, Principles of Unix	57	4.1
Spr 96	CS 6353, Compiler Construction	19	4.9
Spr 96	CS 4347, Database Systems	26	4.2
Fal 95	CS 6353, Compiler Construction	42	4.4
Fal 95	CS 6363, Computer Algorithms	32	4.5
Spr 95	CS 5343, Data Structures and Algorithms	40	4.2
Spr 95	CS 6360, Database Design	46	4.3
Fal 94	CS 6360, Database Design	69	4.3
Fal 94	CS 6376, Parallel Processing	12	4.6
Spr 94	CS 6363, Computer Algorithms	48	4.4
Fal 93	CS 6360, Database Design	55	4.2

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Service

Statement on University and professional citizenship:

I have been a member of the faculty recruitment committee of the Computer Science program during the academic years 1993-94, 1994-95 and 1997-98. We conducted nation-wide searches during each of these years and recruited several new faculty members in the areas of Software Engineering and Telecommunications. During 1996-97, I was a member of a University committee that prepared a report on faculty issues for SACS accreditation. Since 1996, I have taken an active role in the School equipment committee. I have worked along with the other members of the committee on several issues, such as preparing proposals for new equipment for the ECS school, ordering new equipment, planning future needs and streamlining the process of upgrading software and hardware, organizing the move to the new building, recruiting new employees for the Computer support group, etc. I have also served in the University committees on the Library and Information Resources Policy Planning. I am currently serving on the scholarship committee.

I have also been actively pursuing research, and I represent UTD in professional conferences and workshops. I collaborate with a number of other scientists in my research. I also review a number of technical papers each year for journals and conferences.

Committees served:

2004-2005 University scholarship committee
2003-2005 Assistant chair in charge of Graduate Admissions and Advising, CS.
2003-2005 Member of Ph.D. and MS-R committees, CS Department.
2003-2006 Computer Security committee, UTD.
2002-2004 Information resources policy planning advisory committee, UTD.
2001-2002 University library committee.
2001-2006 Chair of computer equipment committee, CS Department.
1996-2001 Computer equipment committee, ECS school.
1999-2001 CS Liaison for Information Resources.
1998-1999 Information resources policy planning advisory committee, UTD.
1997-1998 Faculty recruitment committee.
1996-1997 Self-report committee for accreditation by SACS, UTD
1995-1997 Graduate admissions committee.
1993-1995 Faculty recruitment committee.

Professional service:

Served as program committee member for Dial M for Mobility (workshop) 2000. Member of editorial board of Journal of Graph Algorithms and Applications 2001-2005. Reviewed

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technical articles for SIAM Journal on computing, SIAM Journal on Discrete Mathematics, Journal of Algorithms, Algorithmica, Discrete Applied Mathematics, Mathematical Systems Theory, Journal of Parallel and Distributed Computing, Information Processing Letters, Graphs and Combinatorics, Networks, Journal of Combinatorial Theory, IEEE Annual Symposium on the Foundations of Computer Science (FOCS), ACM-SIAM Annual Symposium on Discrete Algorithms (SODA).

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KAMIL SARAC

Asst. Professor, Department of Computer Science
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University of Texas at Dallas
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EDUCATION

Doctor of Philosophy (Jan. 1998 – Jun. 2002)
In Computer Science at the University of California Santa Barbara
THESIS ADVISOR: Prof. Kevin C. Almeroth.
DISSERTATION: Multicast Monitoring: Supporting a Robust Multicast Service in the Internet.
Master of Science (Apr. 1996 – Dec. 1997)
In Computer Science at the University of California Santa Barbara
THESIS: DFT-based Techniques for Join-size Estimation.
Bachelor of Science (Sep. 1990 – Jun. 1994)
In Computer Engineering at the Middle East Technical University, Ankara, Turkey

WORK EXPERIENCE

Assistant Professor (Sep. 2002 – present)
Department of Computer Science at the University of Texas at Dallas
Research Assistant (Jun. 1998 – Jun. 2002)
Ph.D. research studies under Prof. Kevin C. Almeroth at the Department of Computer Science at UC Santa Barbara
Teaching Assistant (Sep. 1997 – May 2000)
Assisting students in various courses including undergraduate and graduate level Computer Networks classes and undergraduate level Algorithms classes at UC Santa Barbara

TEACHING EXPERIENCE

University of Texas at Dallas

- CS 4390: Computer Networks
- CS 4396: Computer Networks Lab
- CS 6390: Advanced Computer Networks
- CS 7301: Recent Advances in Computing

HONORS AND AWARDS

QAD Fellowship
\$5,000.00 for 2000 – 2001 academic year.
Turkish Government Scholarship
For graduate studies in the United States between 1996 and 1998.

RESEARCH FUNDING / SUPPORT

- Improving the Robustness of Multicast in the Internet*, Cisco Systems University Research Program, \$40,000.00; September 2004.
- P2cast: Receiver Controlled Communication Service for the Internet*, Cisco Systems and UT Dallas, \$40,000.00; September 2004.
- Cyber Security and Emergency Preparedness Institute, \$33,333.00; June 2005 – May 2006.
- Capacity Building: Training Students for Careers in Information Assurance*, Department of Defense, IASP Program, \$75,000.00; August 2006 – July 2007 (Co-PI: Dr. Gupta).
- The Last Mile: Building the Final Piece in One-to-Many Content Distribution*, Cisco Systems University Research Program, unrestricted gift to support our research program in IP multicast management and security, \$50,000.00; October 2006.
- Improving the Robustness of Multicast in the Internet*, UT Dallas, Texas Enterprise Funds, \$40,000.00; September 2004.
- PACOSCOPY: Integrating Multiple-Internal Systems and MAC Protocols*, UT Dallas, Texas Enterprise Funds, \$33,000.00; 2005.
- Capacity Building: Training Students for Careers in Information Assurance*, UT Dallas, Texas Enterprise Funds, \$24,000.00; September 2006.
- The Last Mile: Building the Final Piece in One-to-Many Content Distribution*, UT Dallas, Texas Enterprise Funds, \$15,000.00; November 2006.

PROFESSIONAL ACTIVITIES

Conference Organizations

Co-Chair, IEEE Workshop on End-to-End Monitoring Techniques and Services (E2EMON), in conjunction with IEEE IM Symposium, Munich, Germany, May 21, 2007.
Publicity Committee Co-Chair, IEEE International Conference on Network Protocols 2006 (ICNP), Santa Barbara, CA, USA, November 12-15, 2006.
Co-Chair, Special Track on Computer Networks (CN), ACM Symposium on Applied Computing (SAC), Nicosia, Cyprus, March 2004.
Workshop Co-Chair: IEEE International Conference on Pervasive Services (ICPS), Santorini, Greece, July 11-13, 2005.
Session Chair: Technical Session on Path Monitoring, Workshop on End-to-End Monitoring Techniques and Services (E2EMON), San Diego, CA, USA, October 3, 2004.
Technical Program Committee Membership
IEEE International Conference on Network Protocols 2007 (ICNP), Beijing, China, October 16-19, 2007.
2nd International Workshop on Evolution toward Next Generation Internet (ENGI), Part of ICCS 2007, Chinese Academy of Sciences, Beijing, May 28-31, 2007.
The Second International Conference on Internet Monitoring and Protection (ICIMP 2007), Silicon Valley, CA, USA, July 1-6, 2007.
IEEE International Conference on Network Protocols 2006 (ICNP), Santa Barbara, CA, USA, November 12-15, 2006.

IEEE Communications Society/CreatNet SecurComm, Workshop on Enterprise Network Security, Baltimore, MD, USA, August 28, 2006.

The Mexican International Conference on Computer Science (ENC 2006), San Luis Potosi, Mexico, September 18-22, 2006.

International Conference on Wireless Algorithms, Systems, and Applications (WASA 2006), Xi'an, China, August 15-18, 2006.

IEEE International Conference on Pervasive Services 2006 (ICPS), Lyon, France, 26-29 June 2006.

The Workshop on End-to-End Monitoring Techniques and Services (E2EMON), Vancouver, Canada, April 3, 2006.

IEEE International Conference on Communication - General Symposium (ICC'06 General Symposium), Istanbul, Turkey, June 11-15, 2006.

International Conference on Computational Science (ICCS), Workshop of Evolution toward Next Generation Internet (ENGI), University of Reading, UK, May 28-31, 2006.

The Workshop on End-to-End Monitoring Techniques and Services (E2EMON), Nice-Acropolis, Nice, France, May 15, 2005.

International Conference on Web Information Systems and Technologies, Miami, FL, USA, May 26-28, 2005.

The 3rd IASTED International Conference on Communications, Internet, and Information Technology, St. Thomas, US Virgin Islands, November 22-24, 2004.

IADIS WWW/Internet 2003 Conference, Alvarge, Portugal, November 2003.

Reviewer Duties

For IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Networks Magazine, ACM Computer Communications Review, Software Practice and Experience, Journal of Multimedia Networks and Systems, Journal of Network and System Management.

Grant Proposal Review Duties

BSF - United States - Israel Binational Science Foundation (2007)

Technical Staff Member

Technical staff member for MBone broadcast of technical sessions at 44th, 46th, 48th, 52nd, and 55th Internet Engineering Task Force (IETF) meetings.

Student Volunteer

At IEEE Advances in Digital Libraries Conferences in 1998.

JOURNAL PUBLICATIONS

1. Single Packet IP Traceback in AS-level Partial Deployment Scenario, with Turgay Korkmaz, Chao Gong, and Sandra Dykes, *International Journal on Security and Networks*, accepted for publication.

2. Load-Balanced Agent Activation for Value-Added Network Services, with Chao Gong, Ovidiu Daescu, and Balaji Raghavachari, *Computer Communications Journal*, Vol.29, No. 11, pp. 1905-1916, July 2006.
3. Practical Utilities for Monitoring Multicast Service Availability, with Pavan Namburi and Kevin C. Almeroth, *Computer Communications Journal*, Vol.29, No.10, pp.1675-1686, June 2006.
4. Monitoring IP Multicast in the Internet: Recent Advances and Existing Challenges, with Kevin Almeroth, *IEEE Communications Magazine*, Vol.43, Issue.10, pp.85-91, October 2005.
5. Application Layer Reachability Monitoring for IP Multicast, with Kevin C. Almeroth, *Computer Networks Journal*, Vol.48, No.2, pp.195-213, June 2005.
6. A Distributed Approach for Monitoring Multicast Service Availability, with K. Almeroth, *Journal of Network and Systems Management*, Vol.12, No.3, pp.327-348, September 2004.
7. Tricetree: A Scalable Mechanism to Discover Multicast Tree Topologies in the Internet, with K. Almeroth, *IEEE/ACM Transactions on Networking*, Vol.12, No.5, pp.795-808, October 2004.
8. Supporting Multicast Deployment Efforts: A Survey of Tools for Multicast Monitoring, with K. Almeroth, *Journal of High Speed Networks*, Vol.9, No.3-4, pp.191-211, 2000.
9. DFT Techniques for Size Estimation of Database Join Operations, with O. Egecioglu and A. El-Abbadi, *International Journal of Foundation of Computer Science*, Vol.10, No.1, pp.81-102, 1999.

CONFERENCE PUBLICATIONS

1. Defending Network-Based Services Against Denial of Service Attacks, with Jimu Kurian and Kevin Almeroth, *IEEE ICCCN Conference*, Arlington, VA, USA, October 9-12, 2006.
2. Toward a More Practical Marking Scheme for IP Traceback, with Chao Gong, *IEEE BroadNET's General Symposium*, San Jose, CA, USA, October 2006.
3. Defending Multicast Against State Overload Attacks, with Jimu Kurian, *South Central Information Security Symposium (SCISS)*, pp. Houston, TX, USA, April, 2006.
4. FONE: A Federated Overlay Network for DoS Defense in the Internet (A Position Paper), with Jimu Kurian, *Global Internet Symposium*, Barcelona, Catalunya, SPAIN, April 28-29, 2006.
5. Variable Power Broadcasting in Ad Hoc Networks, with Avinash Chigammi and Ravi Prakash, *IEEE International Conference on Communication, Wireless Ad Hoc and Sensor Networks Symposium*, Istanbul, TURKEY, June 2006.
6. Analytical IP Alias Resolution, with Mehmet Guner, *IEEE International Conference on Communication, General Symposium*, Istanbul, TURKEY, June 2006.
7. Cluster Based Approaches for End-to-End Complete Feedback Collection in Multicast, with Mehmet Baykan, *IEEE International Performance Computing and Communications Conference*, Phoenix, AZ, USA, April 10-12, 2006.
8. Single Packet IP Traceback in AS-level Partial Deployment Scenario, with Chao Gong, Trinh Le, and Turgay Korkmaz, *IEEE GLOBECOM 2005*, St. Louis, MO, USA, November 28 - December 2, 2005.
9. Intersection Characteristics of End-to-End Internet Paths and Trees, with Sevcun Bilir and Turgay Korkmaz, *IEEE International Conference on Network Protocols (ICNP)*, Boston, MA, USA, November 6-9, 2005.
10. FONE: A Federated Overlay Network for DoS Defense in the Internet, with Jimu Kurian, *IEEE International Conference on Network Protocols (ICNP)*, Boston, MA, USA, November 6-9, 2005, (a poster presentation).
11. Receiver-Controlled Communication: A Silver Bullet to DoS Attacks?, with Chao Gong, *IEEE Emerging Technologies Conference (ETC)*, Richardson, TX, USA, September 9-10, 2005.
12. Facilitating Robust Multicast Group Management, with Avijit Mazumder and Kevin Almeroth, *International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV)*, Skamania, WA, USA, June 2005.
13. Log-based IP Traceback in AS-Level Partial Deployment Scenario, with Chao Gong, Trinh Le, and Turgay Korkmaz, *South Central Information Security Symposium (SCISS)*, pp., Austin, TX, USA, April, 2005.

14. IP Traceback Based on Packet Marking and Logging, with Chao Gong, *IEEE International Conference on Communication (ICC)*, Seoul, Korea, May 16-20, 2005.
15. Load Balancing for Reliable Multicast, with Chao Gong, Raja Jothi, Ovidiu Daescu, and Balaji Raghavachari, *3rd IASTED International Conference on Communications, Internet, and Information Technology (CIIT)*, pp. 86-91, St. Thomas, US Virgin Islands, USA, November 22-24, 2004.
16. SSM-Ping: A Ping Utility for Source Specific Multicast, with Pavan Namburi and Kevin C. Almeroth, *3rd IASTED International Conference on Communications, Internet, and Information Technology (CIIT)*, pp. 63-68, St. Thomas, US Virgin Islands, USA, November 22-24, 2004.
17. Improving Energy Savings in Power Adaptive Broadcasting in MANETs, with Mehmet Baysan and Sapirya Gowdamachandran, *BroadNet Wireless Networking Symposium*, pp. 745-747, San Jose, CA, USA, October 25-29, 2004.
18. End User Level Classification of Multicast Reachability Problems, with Pavan Namburi, *Workshop on End-to-End Monitoring Techniques and Services (E2EMON)*, pp. 10-15, San Diego, CA, USA, October 3, 2004.
19. IP Traceback with Packet Marking and Logging, with Chao Gong, *South Central Information Security Symposium (SCISS)*, pp. 1, Houston, TX, USA, April 24, 2004.
20. Multicast Session Announcements on top of SSM, with P. Namburi, *IEEE International Conference on Communication (ICC)*, Vol. 3, pp. 1446-1450, Paris, France, June 2004.
21. Optimal Placement of NAK Suppressing Agents for Reliable Multicast: A Partial Deployment Case, with O. Daescu, R. Jothi, and B. Raghavachari, *Proc. 19th ACM Symposium on Applied Computing (SAC)*, pp. 334-338, Nicosia, Cyprus, March 2004.
22. SSM Extensions: Network Layer Support for Multiple Senders in SSM, with P. Namburi and K. Almeroth, *Proceedings of International Conference on Computer Communication Networks (ICCCN)*, pp. 74-80, October 2003, Dallas, TX.
23. SSM-Based Receiver-Controlled Communication in the Internet, *IEEE Emerging Telecommunication Technologies Security Symposium*, pp. 1, Denton, TX, April 2003.
24. Monitoring Multicast Service in the Internet, *IEEE Emerging Telecommunication Technologies Conference (ETTTC)*, pp. Dallas, TX, September 2002.
25. Providing Scalable Many-to-One Feedback in Multicast Reachability Monitoring Systems, with K. Almeroth, *IFIP/IEEE International Conference on Management of Multimedia Networks and Services (MAMS)*, pp. 256-270, Chicago, IL, October 2001.
26. Scalable Techniques for Discovering Multicast Tree Topology, with K. Almeroth, *International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV)*, pp. 73-81, Port Jefferson, New York, USA, June 2001.
27. Monitoring Reachability in the Global Multicast Infrastructure, with K. Almeroth, *IEEE International Conference on Network Protocols (ICNP)*, pp. 141-150, Osaka, JAPAN, November 2000.
28. Supporting the Need for Inter-Domain Multicast Reachability, with K. Almeroth, *International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV)*, pp. 230-239, Chapel Hill, NC, June 2000.
29. Iterated DFT Based Techniques for Join-Size Estimation, with O. Egecioglu and A. El Abbadi, *Conference on Information and Knowledge Management (CIKM)*, pp. 348-355, Bethesda, MD, November 1998.

OTHER PUBLICATIONS

1. M-Ping: A Ping Utility for IP Multicast, with K. Almeroth, *Internet Engineering Task Force (IETF)*, Internet Draft, January 2004.
2. RTP Control Protocol Extended Reports (RTCP XR), with T. Friedman, R. Cuevas, A. Clark, K. Almeroth, R. Cole, N. Duffield, K. Hattayat, M. Westerlund, *Internet Engineering Task Force (IETF)*, RFC 3611, November 2003.
3. Multicast Monitoring: Supporting a Robust Multicast Service in the Internet, *Ph.D. Dissertation Thesis*, UC Santa Barbara, June 2002.
4. Tractree: A Utility to Discover Multicast Tree Topology in the Network, with K. Almeroth, *Internet Engineering Task Force (IETF)*, Internet Draft, December 2001.

5. Supporting Multicast Management Using the Multicast Reachability Monitor (MRM) Protocol, with Kevin Almeroth and Liming Wei, *Technical Report in Computer Science*, TR2000-26, 2000.

TECHNICAL PRESENTATIONS

1. Variable Power Broadcasting in Ad Hoc Networks, *IEEE International Conference on Communication, Wireless Ad Hoc and Sensor Networks Symposium*, Istanbul, TURKEY, June 2006.
2. Analytical IP Alias Resolution, *IEEE International Conference on Communication, General Symposium*, Istanbul, TURKEY, June 2006.
3. Intersection Characteristics of End-to-End Internet Paths and Trees, *IEEE International Conference on Network Protocols (ICNP)*, Boston, MA, USA, Nov 6-9, 2005.
4. IP Traceback Based on Packet Marking and Logging, *IEEE International Conference on Communication (ICC)*, Seoul, Korea, May 16-20, 2005.
5. End User Level Classification of Multicast Reachability Problems, *E2EMON Workshop*, San Diego, CA, USA, October 3, 2004.
6. SSM-Based Receiver-Controlled Communication in the Internet, *SCISS*, Denton, TX, April 2003.
7. Monitoring Multicast Service in the Internet, *IEEE ETTTC Conference*, Dallas, TX, September 2002.
8. Providing Scalable Many-to-One Feedback in Multicast Reachability Monitoring Systems, *MAMS Conference*, Chicago, IL, USA, October 2001.
9. Scalable Techniques for Discovering Multicast Tree Topology, *NOSSDAV Workshop*, Port Jefferson, NY, USA, June 2001.
10. SDR Global Session Monitoring Effort, *MBone Deployment Working Group*, IETF Meeting, Minneapolis, MN, USA, March 1999.
11. Iterated DFT Based Techniques for Join Size Estimation, *CIKM Conference*, Bethesda, MD, USA, November 1998.

STUDENTS

- Pavan Namburi, M.S. (Fall 2004) – now with Qualcomm Inc.
- Sevcian Bilir, M.S. (Fall 2004)
- Avinash Chigannni, M.S. (Summer 2006) – now with Qualcomm Inc.
- Chao Gong, Ph.D. (in progress)
- Mehmet H. Gunes, Ph.D. (in progress)
- Jinu Kurian, Ph.D. (in progress)
- Mehmet Baysan, Ph.D. (co-advising with Prof. Chandrasekaran)

THESIS/DISSERTATION COMMITTEE WORK

- Ming Li, Ph.D. (Summer 2006) (Title: Interference Aware WoS Strategies in IEEE 802.11 Wireless Networks; Advisor: Dr. B. Prabhakaran)
- Wade A. Fagen, M.S. (Summer 2006) (Title: The Galiath Framework: A Configurable Virtual Network Environment; Advisor: Dr. J. Cangusto)
- Kuppapalli L. Phaneesh, M.S. (Spring 2006) (Title: A Safe Termination Detection Algorithm for Asynchronous Distributed Systems in Crash-Recovery Model; Advisor: Dr. Neeraj Mittal)
- Srinajani Sitaranan, Ph.D. (Spring 2006) (Title: Algorithms to Enable Forensic Analysis of Computer and Network Intrusions; Advisor: Dr. Subbarayan Venkatesan)
- Shashidhar Rao Gandham, Ph.D. (Spring 2006) (Title: Near Optimal Algorithms for Link-Scheduling, Routing and Positioning of Mobile Base Stations in Wireless Sensor Networks; Advisor: Dr. Ravi Prakash)

- Mansoor Mohsin, Ph.D. (Spring 2006) (Title: Reliable Communication in Mobile Ad Hoc Networks; Advisor: Dr. Ravi Prakash)
- Hai Trong Vu, M.S. (Fall 2005)
- Shwetha Ramesh, M.S. (Fall 2005)
- Ashok Lalwani, M.S. (Fall 2005)
- Natarajan Meghanaathan, Ph.D. (Spring 2005)
- Sriharsha Kadalba, M.S. (Spring 2005)
- Vedha C. Bharathi, M.S. (Spring 2005)
- Yogesh G. Iyer, M.S. (Spring 2005)
- Madhu Yennamani, M.S. (Fall 2004)
- Sanket Nesargi, Ph.D. (Spring 2003)

HAIM SCHWEITZER

CURRENT POSITION

Associate Professor of Computer Science at the University of Texas at Dallas. Research interests are in computer vision, machine learning, and related Internet technology.

PREVIOUS EMPLOYMENT

9/88 - 12/90 : MT's at David Sarnoff Research Center, Princeton, NJ.

WEIZMANN FELLOWSHIP POST-DOCTORATE

9/87 - 8/88: Department of Computer Science, Cornell University, Ithaca, NY.

10/86 - 8/87: Department of Computer Science, Columbia University, New York, NY.

6/86 - 10/86: Computer and Vision Research Center, University of Texas at Austin.

EDUCATION

Ph.D. : The Hebrew University of Jerusalem, Department of Computer Science, 1986.

BS : Tel Aviv University, Department of Mathematics and Computer Science, 1982.

Awards, Grants, and Sponsored Projects

- TSWG, "A Logic-Based Integral-Images Approach to Face Detection and Benchmarking Human Face Matching Performance over Changes in Photometric Conditions", 2003-2005, (\$630,000). Principal Investigator. Co-PI's are K. Truemper, A. O'toole, and H. Abdl.
- Texas Advanced Technology Program, "A Browser for Visual Data", 2002 - 2004. (\$153,300)
- Texas Advanced Research Program, "Content Based Indexing and Retrieval of Images and Video", 2000 - 2002. (\$105,300)
- NSF, "Extracting Information from Digital Video Motion Sequences", 1993-1997. (\$39,993)
- The Chaim Weizmann Postdoctoral Fellowship.
- Israel National Council for Research and Development, "Advanced methods for image restoration and understanding", 1984-1987. (Co-principal investigator with S. Peleg).
- Basic Research Foundation of the Israel Academy of Sciences, "Solving image processing and probabilistic classification problems using vector space representation", 1983-1986. (Co-principal investigator with S. Peleg).
- Elhit, "Automatic visual inspection", 1983. (Co-principal investigator with S. Peleg).

PROFESSIONAL ACTIVITIES

Associate Editor, Journal of Machine Learning and Applications, Springer.

Reviewer of papers for *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *IEEE Transactions on Image Processing*, *Artificial Intelligence - An International Journal*, *Neural Networks Review*, *Journal of Computer Vision, Graphics, and Image Processing*, *Journal of Computer Vision and Image Understanding*, *The Computer Journal*. Reviewer of grant proposals for NSF.

PUBLICATIONS

BOOK CHAPTER

- Y. Caspi, H. Shvaytser, and J. R. Bergen. Monte-Carlo Hough transforms. In S. I. Olsen and P. Johansen, editors, *Theory and Applications of Image Analysis*, pages 185-197. World Publications, 1992.

JOURNAL PUBLICATIONS

- T. Yoshizawa and H. Schweitzer. Interactive browsing of visual content on the internet. *Journal of Internet Technology*, 7(1), 2006.
- H. Schweitzer. Organizing image databases as visual-content search trees. *Image and Vision Computing*, 17(7):531-540, 1999. Special Issue on Content-Based Image Indexing and Retrieval.
- H. Schweitzer and J. Straach. Utilizing moment invariants and Gröbner bases to reason about shapes. *Computational Intelligence*, 14(4):461-474, November 1998.
- H. Schweitzer and S. Kulicarni. Computational limitations of model-based recognition. *International Journal of Intelligent Systems*, 13(5):431-443, May 1998.
- H. Schweitzer. Precise induction from statistical data. *Journal of Experimental and Theoretical Artificial Intelligence*, 10:1-15, 1998.
- H. Schweitzer. A distributed algorithm for content based indexing of images by projections on Ritz primary images. *Data Mining and Knowledge Discovery*, 1(4):375-390, 1997.
- H. (Shvaytser) Schweitzer. Occam algorithms for computing visual motion. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 17(11):1033-1042, November 1995.
- J. R. Bergen and H. Shvaytser. A probabilistic algorithm for computing Hough transforms. *Journal of Algorithms*, 12(4):639-656, December 1991.
- H. Shvaytser. Learnable and nonlearnable visual concepts. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 12(5):459-466, May 1990.
- L. G. Brown and H. Shvaytser. Surface orientation from projective foreshortening of isotropic texture autocorrelation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 12(6):584-588, June 1990.
- H. Shvaytser. A necessary condition for learning from positive examples. *Machine Learning*, 5(1):101-103, 1990.
- H. Shvaytser. A geometric approach to learning in neural networks. *Neural Network Review*, 3(2):68-69, 1989.
- H. Shvaytser. On a consistency measure for object labeling problems. *Fuzzy sets and systems*, 23:55-71, 1987.
- H. Shvaytser and S. Peleg. Representation of patterns of symbols by equations with applications to puzzle solving. *Pattern Recognition Letters*, 5(2):119-128, 1987.
- H. Shvaytser and S. Peleg. Inversion of picture operators. *Pattern Recognition Letters*, 5(1):49-61, 1987.

- H. Shvaytser and S. Peleg. Fuzzy and probability vectors as elements of a vector space. *Information Sciences*, 36:231-241, 1985.
- E. Harouche, S. Peleg, H. Shvaytser, and L. Davis. Noisy image restoration by cost function minimization. *Pattern Recognition Letters*, pages 65-69, January 1985.

REFEREED CONFERENCES

- Feng Wu and Haim Schweitzer. Fast selection of linear features in image data. In *Proceedings of IEEE Workshop on Learning in Computer Vision and Pattern Recognition*, June 2006.
- Feng Wu and Haim Schweitzer. Feature selection for learning from images. In *Proceedings of the 2005 International Conference on Computer Vision (Vision'05)*, pages 127-133, June 2005.
- T. Yoshizawa and H. Schweitzer. Long-term learning of semantic grouping from relevance-feedback. In *Proceedings of the 6th ACM SIGMM International Workshop on Multimedia Information retrieval*, pages 165-172, 2004.
- H. Schweitzer. Computing content-plots for video. In A. Heyden, G. Sparr, M. Nielsen, and P. Johansen editors, *Computer Vision - ECCV 2002*, number 2353 in Lecture Notes in Computer Science, pages 491-501. Springer-Verlag, 2002.
- H. Schweitzer, J. W. Bell, and F. Wu. Very fast template matching. In A. Heyden, G. Sparr, M. Nielsen, and P. Johansen, editors, *Computer Vision - ECCV 2002*, number 2353 in Lecture Notes in Computer Science, pages 358-372. Springer-Verlag, 2002.
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- H. Schweitzer. Utilizing scatter for pixel subspace selection. In *Proceedings of the International Conference on Computer Vision (ICCV'99)*, pages 1111-1116. IEEE Computer Society Press, September 1999.
- H. Schweitzer. Optimal eigenfeature selection by optimal image registration. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR'99)*, pages 219-224. IEEE Computer Society Press, June 1999.
- H. Schweitzer. Indexing images by trees of visual content. In *Proceedings of the Sixth International Conference on Computer Vision (ICCV'98)*, pages 582-587, January 1998.
- H. Schweitzer. Computing Ritz approximations to primary images. In *Proceedings of the Sixth International Conference on Computer Vision (ICCV'98)*, pages 139-144, January 1998.
- H. Schweitzer. An eigenspace approach to multiple image registration. In *Proceedings of the Image Registration Workshop*, NASA Publication # CP-1998-206853, pages 7-12, NASA Goddard Space Flight Center, November 1997.
- H. Schweitzer. Classification and *Reductio-ad-Absurdum* Optimality Proofs. In *Proceedings of the Fourteenth National Conference on Artificial Intelligence (AAAI'97)*, pages 88-93, July 1997.
- H. Schweitzer and R. Krishnan. Structure from multiple 2D affine correspondences without camera calibration. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR'96)*, pages 258-263. IEEE Computer Society Press, June 1996.
- H. Schweitzer and J. Straach. Utilizing moment invariants and Gröbner bases to reason about shapes. In *Proceedings of the 14th International Joint Conference on Artificial Intelligence (IJCAI'95)*, pages 908-914, Montreal, August 1995. Morgan Kaufman.

- H. Schweitzer and Y. Zhang. Encoding motion and approximate segmentation in a slicing floor-plan tree structure. In A. A. Rodriguez, R. J. Sfrank, and E. J. Delp, editors, *Proceedings of the SPIE Conference on Digital Video Compression: Algorithms and Technologies 1995*, volume 2419, pages 254-264. SPIE, February 1995.
- H. Schweitzer and Y. Zhang. Interpolating DCT representation of digital video over time. In R. L. Stevenson and S. A. Rajala, editors, *Proceedings of the SPIE Conference on Image and Video Processing III*, volume 2421, pages 15-22. SPIE, February 1995.
- H. (Shvaytser) Schweitzer. A surface matching algorithm for two perspective views. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '93)*, pages 742-743. IEEE Computer Society Press, June 1993.
- H. (Shvaytser) Schweitzer. Ocean algorithms for computing visual motion. In *Proceedings of the Fourth International Conference on Computer Vision (ICCV'93)*, pages 551-555, May 1993.
- H. Shvaytser and J. R. Bergen. Monte-Carlo Hough transforms. In *Proceedings of the 7th Scandinavian Conference on Image Analysis (SCIA '91)*, pages 80-87, August 1991.
- H. Shvaytser. Towards a computational theory of model based vision and perception. In *Proceedings of the Third International Conference on Computer Vision (ICCV'90)*, pages 283-286, December 1990.
- H. Shvaytser. Probabilities that imply certainties. In *Proceedings of the Eight National Conference on Artificial Intelligence (AAAI-90)*, pages 665-670, 1990.
- H. Shvaytser. On the learning power of networks with a bounded fan-in layer. In *Proceedings of the International Joint Conference on Neural Networks*, volume I, pages 313-316, January 1990.
- P. J. Burt, J. R. Bergen, R. Hingorani, R. Koleszinski, W. A. Lee, A. Leung, J. Lubin, and H. Shvaytser. Object tracking with a moving camera. In *Proceedings of the workshop on visual motion*, Irvine, pages 2-12, March 1989.
- H. Shvaytser. Even simple neural nets cannot be trained reliably with a polynomial number of examples. In *Proceedings of the International Joint Conference on Neural Networks*, volume II, pages 141-145, June 1989.
- H. Shvaytser. Detecting changes in patterns of points. In *Proceedings of the 6th Scandinavian Conference on Image Analysis (SCIA '89)*, pages 561-568, June 1989.
- H. Shvaytser. Learnable and non-learnable visual concepts. In *Proceedings of the Second International Conference on Computer Vision (ICCV'88)*, pages 264-268, December 1988.
- H. Shvaytser. Non-learnable classes of boolean formulae that are closed under variable permutation. In *Proceedings of the First Workshop on Computational Learning Theory (COLT'88)*, pages 155-166, 1988.
- H. Shvaytser. Detecting motion in out-of-register pictures. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '88)*, pages 696-701, 1988.
- L. G. Brown and H. Shvaytser. Surface orientation from projective foreshortening of isotropic texture autocorrelation. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '88)*, pages 510-514, 1988.
- L. G. Brown and H. Shvaytser. Surface orientation from projective foreshortening of isotropic texture autocorrelation. In *Proceedings of the Darpa Image Understanding Workshop*, pages 1155-1159, 1988.
- H. Shvaytser. Representing knowledge in learning systems by pseudo boolean functions. In *Proceedings of the Second Conference on Theoretical Aspects of Reasoning about Knowledge (TARK '92)*, pages 245-259. Morgan Kaufman, 1988.
- H. Shvaytser and S. Peleg. Inversion of picture operators. In *Third International Conference of the British Pattern Recognition Association*, September 1985.

- H. Shvaytser and S. Peleg. Representation of patterns of symbols by equations with applications to puzzle solving. In *Third International Conference of the British Pattern Recognition Association*, September 1985.
- H. Shvaytser and S. Peleg. A new approach to the consistent labeling problem. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '86)*, pages 320-327, 1986.
- H. Shvaytser and S. Peleg. Inversion of picture operators. In *Proceedings of the 1983 IEEE International Conference on Systems Man and Cybernetics*, pages 320-327, 1983.
- H. Shvaytser and S. Peleg. Image restoration using vector space representation. In *Proceedings of the IFA Conference on Image Processing Computer Graphics and Pattern Recognition*, pages 1-14, 1983.
- H. Shvaytser and S. Peleg. Pictures as elements of a vector space. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR '83)*, pages 222-230, 1983.

Edwin (Hsingmean) Sha

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Edwin Sha received the B.S.E. degree in computer science and information engineering from National Taiwan University, Taipei, Taiwan, in 1986; he received the M.A. and Ph.D. degree from the Department of Computer Science, Princeton University, Princeton, NJ, in 1991 and 1992, respectively. From August 1992 to August 2000, he was with the Department of Computer Science and Engineering at University of Notre Dame, Notre Dame, IN. He served as the Associate Chair and the Graduate Director of the department at Notre Dame from 1995 to 2000. Since 2000, he has been a tenured full professor in the Department of Computer Science at the University of Texas at Dallas (UTD). He served as the Head of Computer Science Division in 2001 and the coordinator for Computer Systems Group at UTD.

He has published more than 220 research papers in refereed international conferences and premier journals. He served in the program committees of numerous conferences and editors of many journals including IEEE Transactions on VLSI Systems, IEEE Transactions on Signal Processing, Journal of Embedded Computing, Journal of VLSI Signal Processing, etc. He received Oak Ridge Association Junior Faculty Enhancement Award, Notre Dame CSE Teaching Award, NSF CAREER Award, NSF ITR grant, and Microsoft Trustworthy Curriculum Award. He served as the technical program chairs or general chairs for many international conferences such as Great Lakes Symposium on VLSI (GLSVLSI) 1994, Parallel and Distributed Computing (PDCS) 2000, PDCS 2001, Parallel and Distributed Embedded Systems (PDES) 2005, Embedded and Ubiquitous Computing (EUC) 2006, EUC 2007, Embedded Software Optimizations (ESO) 2006. His research has been supported by NSF (CAREER, ITR, EIA, IIS), Texas Instruments, AT&T, Texas Advanced Research Program, Microsoft Research, etc.

He has graduated 11 PhD students and will graduate 2 more PhD students by the end of Spring 2007. Two of them received UTD ECS Best PhD Dissertation Awards. His research goal is to efficiently design parallel, distributed and heterogeneous embedded architectures with the guarantee to satisfy the given requirements such as timing, power, memory-size, cost, security, etc. He has been developing new techniques that optimize timing performance and minimize power consumption for DSP applications and computer security applications considering multiple data memory modules and strict code-size constraint in embedded processors. Many optimization algorithms have been developed such as hardware/software combined security defender, code-size reduction, multi-dimensional (MD) retiming, MD rotation, MD interleaving, nest-loop pipelining, integrated design space minimization, fast intrusion detection hardware, and intelligent data/memory management and partitioning. After moving to UTD, he has been studying efficient routing and partitioning in mobile ad-hoc networks. The

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detailed information can be found on the web at <http://www.utdallas.edu/~edsha>.

Research Interests and Specialties

Embedded Software and Systems, Computer and Network Security, Parallel Architectures and Systems, High-performance and Low-Power Real-Time Systems, Network Architectures, Compilers, Application Specific VLSI Design, Operating Systems, High-Level Synthesis.

Citizenship: USA

Education

Ph.D. Computer Science Princeton University Oct. 1992
Thesis title: Real-Time Fault Tolerance for Array Architectures
Advisor: Prof. Kenneth Steiglitz
M.A. Computer Science Princeton University Jan. 1991
B.S.E. Computer Science National Taiwan University June 1986
(GPA: 3.9/4.0, Book Coupon Awards, five times)

Professional Experience

Aug. 00 - Present	Professor (Tenured)	Dept. of Computer Science University of Texas at Dallas, TX
Jan. 02 - Oct. 2004	Coordinator	Computer Systems Group University of Texas at Dallas, TX
Aug. 98 - Aug. 00	Associate Professor (Tenured) Associate Chair	Dept. of Computer Science & Engr. University of Notre Dame, IN
May 95 - Aug. 98	Assistant Professor Associate Chair	Dept. of Computer Science & Engr. University of Notre Dame, IN
Aug. 92 - May 95	Assistant Professor	Dept. of Computer Science & Engr. University of Notre Dame, IN
Sep. 88 - July 92	RA and TA	Dept. of Computer Science Princeton University, NJ
Aug. 86 - May 88	System Programmer	Marine Corps, Taiwan

Membership

ISCA, ACM and The Institute of Electrical and Electronics Engineers (IEEE).

Courses taught and designed since August 1992

2

Computer and Network Security, Information Security, Parallel Architectures and Systems, Synthesis and Optimization of High-Performance Systems, Data Structures, VLSI Processor Arrays, Principles of Parallel Computing, Specialized Parallel Architectures, Operating Systems Principles, Automata.

Graduate Students Advised (as their major thesis advisor)

1. Jason Xue, **Ph.D. degree (expected)**, 2007, Ph.D. Dissertation Title: *Memory and Parallelism Optimization for Embedded Systems*.
2. Meikang Qiu, **Ph.D. degree (expected)**, 2007, Ph.D. Dissertation Title: *Time and Power Optimization for Heterogeneous Parallel Embedded Systems*.
3. Meilin Liu, **Ph.D. degree**, 2006, Ph.D. Dissertation Title: *Loop Transformation Techniques Considering Timing and Memory Optimization for Embedded Systems*.
4. Kevin Chen, **Ph.D. degree**, 2006, Ph.D. Dissertation Title: *Efficient Network Architectures and Switch Fabrics for Packet Routing*.
5. Zili Shao, **Ph.D. degree**, 2005, Ph.D. Dissertation Title: *High Performance, Low Power and Secure Embedded Systems. Received the 2005 UTD ECS The Best PhD Dissertation Award*.
6. Bin Xiao, **Ph.D. degree**, 2003, Ph.D. Dissertation Title: *Dynamic Techniques for Constant Change Networks*.
7. Qingfeng Zhuge, **Ph.D. degree**, 2003, Ph.D. Dissertation Title: *Timing and Memory Optimization for Embedded Systems. Received the 2003 UTD ECS The Best PhD Dissertation Award*.
8. Timothy O'Neil, **Ph.D. degree**, 2002, Ph.D. Dissertation Title: *Techniques for Optimizing Loop Scheduling*.
9. Virgil Androneache, Master degree, 2000, Thesis Title: *Intelligent Page Placement and Replacement on Multiple Level Memory Systems*.
10. Jiangfeng Ding, Master degree, 2000, Thesis Title: *Application Specific Image Compression for Virtual Conferencing*.
11. Fei Chen, Master degree, 2000, Thesis title: *Intelligent Algorithms for Hiding Memory Latencies*.
12. Joy Chantrapornchai, **Ph.D. degree**, 1999, Ph.D. Dissertation Title: *System Level Synthesis Considering Impreciseness Based on Fuzzy Theory*.
13. Sissadas Tongshima, **Ph.D. degree**, 1999, Ph.D. Dissertation Title: *Loop Scheduling for Applications with Fixed or Probabilistic Timing Information*.
14. Milind Saraph, Master degree, 1998, Thesis Title: *Distributed File Systems: An Empirical Study*.
15. David Surma, **Ph.D. degree**, 1998, Ph.D. Dissertation Title: *Collision Graph Based Communication Scheduling and Applications*.
16. Kaisheng Wang, Master Degree, 1998, Thesis Title: *Register Constrained Rotation Scheduling*.
17. Ted Zhihong Yu, Master Degree, 1997, Thesis Title: *Algorithms and Hardware Support for Multi-Dimensional Branch Anticipation*.

18. Michael Shellga, **Ph.D. degree**, 1997, Ph.D. Dissertation Title: *Efficient High Level Synthesis Using Hardware/Multi-Software Co-Design and Communication Minimization*.
19. Nelson Passos, **Ph.D. degree**, 1996, Ph.D. Dissertation Title: *The Multi-Dimensional Resizing Framework*.
20. Nicole Sabine, Master Degree, 1995, Thesis Title: *Selectively Fault-Tolerant, Hard Real-Time Multiprocessor Scheduling*.
21. Yvonne (YuHong) Wang, Master Degree, 1995, Thesis Title: *Scheduling via Node Replication for Parallel Systems*.
22. Sissadas Tongshima, Master Degree, 1995, Thesis Title: *Communication Sensitive Scheduling for Parallel systems*.
23. Jenny (QingYan) Wang, Master Degree, 1995, Thesis Title: *Memory Constrained Partitioning and Scheduling for Multi-dimensional Applications*.
24. John Swadener, Master Degree, 1994, Thesis Title: *A Simulation Environment for Automatic Partitioning and Scheduling of Parallel Programs Based on Simulated Annealing*.

Undergraduate Students Advised

1. Roger Patrick Gorman and Ronald Sella, 1999 and 2000, Research Project: *Java Parallel Virtual Machines*.
2. Sam Ruppert and Richard Wiseman, 1999 and 2000, Research Project: *Virtual Network Chat with Animated Face*.
3. Melissa Layton, Vincent Oh, 1999 and 2000, Research Project: *Virtual Mobile Dog: An example of Mobile Agent*.
4. Ronald Sella, Mohamed Helmy, and Roger Gorman, 1999, Research Project: *Simulator for Java Virtual Machine and Pipelined JVM*.
5. Ryan Carlson and Michael Dreznes, 1998 and 1999, Research Project: *Java Virtual Conference*.
6. Dominic Fahey and Clinton Grady, 1998 and 1999, Research Project: *Multiple-thread Real-Time Java Based Web Camera*.
7. Joseph Bishey and Donald Reinhart, 1997, Research Project: *Pegasus: tools for collaborating and communicating for multiple users*.
8. Nathan Isley, CSE, 1997, Research Project: *Virtual Friend based on Java*.
9. Becky Saydek, CSE, 1995, Research Project: *Real-Time Multiprocessor Scheduling for Fault-tolerance*.
10. Thomas Aranda, CSE, 1995, Research Project: *Simulation Tools for Parallel Systems*.
11. Dan Cieslak, CSE, 1995 and 1996, Research Project: *Efficient Parallel Programming*.

Graduate Students being Currently Advised

1. Yi He, Ph.D. Student, Research Project: *Reliability-Driven Scheduling for Heterogeneous Embedded Systems*.
2. Daniel Lorts, Ph.D. Student, Research Project: *Reconfigurable Computing*.

3. Meikang Qiu, Ph.D. Student, Research Project: *Optimization and Design for Heterogeneous Embedded Systems*.

4. Chun Xue, Ph.D. Student, Research Project: *Compiling Optimization for Embedded Systems*.

5. Ping Mao, Ph.D. Student, Research Project: *Memory Issues in Parallel Embedded Systems*.

Grants

1. Oak Ridge Associated Universities, *Timing Optimization for Multi-Dimensional Scientific Applications*, Principal Investigator, \$10,000, June 1994 - May 1995.
2. NSF Cornell Theory Center, 90 service units for KSR and IBM SP1, Principal Investigator, August 1993 - January 1994.
3. NSF CAREER Award, *High-Level Design Methodologies for Time-Optimal and Memory-Optimal Systems*, Principal Investigator, MIPS 95-01006, \$139,000, (the amount from NSF), June 1995 - May 1999.
4. NSF Pittsburgh Supercomputing Center, 554 Service Units for Cray C90 and Cray T3D, Principal Investigator, September 1995 - September 1996.
5. NSF National Center for Supercomputing Applications, 25 SU Hours for CM5, Principal Investigator, August 1995 - January 1996.
6. NSF Cornell Theory Center, 100 service units for IBM SP2, Principal Investigator, August 1995 - January 1996.
7. NSF Equipment Grant, Principal Investigator, MIPS 95-01006, \$50,000, May 1996 - May 1999.
8. NSF, Co-PI (with Peter Kogge, Jay Brockman, Steven Bass, and Danny Chen), *Pursuing A Petalops: Point Designs for 100 TF Computers Using PIM Technologies*, NSF ACS 96-12028, \$100,000, April 1996 - May 1997.
9. NSF, Co-PI (with Nelson Passos), *Architecture support and code generation for general nested loops with fine-grain parallelism*, MIP-9704276, \$240,000, July 1997 - June 2000.
10. DARPA ITO (through JPL and NASA), Co-PI (with Peter Kogge, Steven Bass, Jay Brockman, Andy Lumsdaine and Vincent Freeh), *A Hybrid Technology MultiThreaded Architecture for Petalops Computing*, JPL Award No. 961097, \$604,200, May 1997 - June 1999.
11. AT&T, PI, *Communication Bandwidth Reduce Techniques & IP video Phone*, Award No. A-98-11-00002, \$25,000, May 1998 - August 1999.
12. AT&T, PI, *Video Chat and Bandwidth Reduction Techniques*, \$25,000, September 1999 - May 2001.
13. Texas Instruments, PI, *Hardware/Software Co-Designs for DSP and Communications*, Lab. Equipments, \$49,514, November, 2000.
14. Xilinx, PI, *Embedded Systems Designs*, Lab. Equipments, \$43,390, January, 2001.
15. NSF, Co-PI (with L-L Yen, F. Bastani, Y. Deng, L. Khan), *EIA-0103709, A Distributed Component Repository for Rapid Synthesis of Adaptive Real-Time Systems*, \$499,866, September 2001 - August 2004.

16. ARP, PI, *Algorithms on High-Level Synthesis and Optimization for High-Performance Systems*, \$96,000, Jan. 2002 - Aug. 2004.

17. NSF, PI, COR-0309461, *Design Space Exploration and Synthesis for Multiple-Mode Embedded Systems*, \$210,000 plus UTD Matching, Sept. 2003 - Aug. 2007, NSF ITR grant.

18. Microsoft, PI, *The Development of Trustworthy Computing Course*, \$50,000, Since Jan. 2005, Unrestricted gift account.

19. Hong Kong Polytech University, Academic Visiting Scholar Grant, HK\$30,000 plus travel expense, May 2004.

20. Wind River, PI, *Embedded Systems Research*, Wind River University Program Grant, Platform Software for Network Equipment, and Development tools for VxWorks, \$100,000, September 2004.

21. Altera Corporation, PI, *Embedded Systems Design and Optimization*, Altera University Program Grant, QUARTUS II development suites, \$26,170, Jan. 2005.

22. UTD, Co-PI (with W. Wu, F. Qiu), *Efficient Spatial-Temporal Analysis of Environment and Public Health Related Data*, \$60,000, May 2005 - Aug. 2006.

23. Hong Kong, Research Grant Council, CO-PI (with Bin Xiao), RGC PolyU A-PA2F, *To Provide Network Security from the Prevention of Buffer Overflows to the Early-stage Detection of DDos Attacks*, HK \$150,000, Aug. 2005 - July 2007.

24. NSF, Co-PI (with W. Wu, F. Qiu), NSF IIS-0513669, *Efficient Spatial-Temporal Analysis of Environment and Public Health Related Data*, \$397,504, Sept. 2005 - Aug. 2008.

25. Hong Kong, Research Grant Council, Competitive Earmarked Research Grant (OERG), CO-PI (with Bin Xiao), CERG B-Q02S, *Early Detection and Effective Counteraction of DDos attacks at the Victim Server Side*, HK \$534,000, Jan. 2007 - Dec. 2009.

26. Altera Corporation, PI, *Embedded Systems Education and Research*, Altera University Program Grant, QUARTUS II development suites, \$22,000, Dec. 2006.

27. NSF, Co-PI, III-CXT: *Text Mining Biological Literature for Discovery of Functional Relationships among Genes*, \$449,128, Aug. 2007 - July 2010, Submitted.

28. NSF, PI, CSR-EHS: *Removing Memory Wall for Embedded Multiprocessors*, \$428,684, Sept. 2007 - Aug. 2010, Submitted.

29. NSF, PI, CSR-PDOS: *Efficient Resource Allocation and Scheduling in Parallel Ubiquitous and Embedded Systems*, \$239,385, Sept. 2007 - Aug. 2010, Submitted.

30. NSF, PI, CT-ER: *Exploring Hardware/Software Combined Solutions to Secure Computing Systems*, \$250,000, Sept. 2007 - Aug. 2009, Submitted.

Professional Activities and Awards

1. Microsoft Trustworthy Computing Curriculum Development Award, 2005.
2. Recent Invited Speeches:
Renmin University of China, June 2006, Suzhou University, June 2006, Shandong University, June 2006, National Taiwan University, May 2006, Shandong University May 2005, Jiangsu University May 2005, Nanjing University December 2004, Zhejiang University December 2004, Jiangsu University December 2004, Shanghai Jiaotong University

December 2004, Tsinghua University October 2004, National Taiwan University October 2004, Hong Kong Polytechnic University May 2004, Shanghai Jiaotong University May 2004, Tsinghua University March 2003.

3. Keynote Speeches:
2005 IFIP International Conference on Embedded And Ubiquitous Computing (EUC 2005), Nagasaki, Japan, December 2005.
Emerging Information Technology Conference (EITC 2005), Taipei, Taiwan, August 2005.
The Ninth Workshop on Compiler Techniques for High-Performance Computing, Taipei, Taiwan, March 2003.
4. Member of Embedded Systems Expert Committee, Chinese Institute of Electronics, June 2006 - Present.
5. Visiting Professor, National Taiwan University, Taiwan, Sponsored by National Education Ministry, May 2006.
6. Specially Appointed Visiting Professor, Shandong University, Jinan, Shandong, China, 2006.
7. Guest (Honorary) Professor, Shandong University, Jinan, Shandong, China, 2005 - Present.
8. Part-Time PhD Advising Professor, Shandong University, Jinan, Shandong, China, 2006 - Present.
9. Guest (Honorary) Professor, Shanghai Jiaotong University, Shanghai, China, 2004 - Present.
10. General Chair of the 2007 IFIP International Conference on Embedded And Ubiquitous Computing (EUC 2007), Taipei, Taiwan, December 2007.
11. Steering Committee Chair of the International Workshop on Embedded Software Optimization (ESO).
12. Program Committee Chair of the 2006 IFIP International Conference on Embedded And Ubiquitous Computing (EUC 2006), Seoul, Korea, August 2006.
13. General Committee Co-Chair of the 2006 International Workshop on Embedded Software Optimization (ESO 2006), Seoul, Korea, August 2006.
14. General Committee Co-Chair of the First International Workshop on Security in Ubiquitous Computing (SecUbiqu-05) in conjunction with EUC 2005, Nagasaki, Japan, Dec. 2005.
15. General Committee Co-Chair of the 1st International Workshop on Parallel and Distributed Embedded Systems (PDES) in conjunction with ICPADS 2005, Fukuoka, Japan, July 2005.
16. Evaluation Committee, The National Science and Technology Program for Systems-on-Chip (NSTPSoC), Republic of China, Taiwan, 2004.
17. Program Committee Chair of the 14th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), Texas, August 2001.
18. Program Committee Chair (with Prof. Ghulam M. Chaudhry) of the 13th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), Las Vegas, Nevada, August 2000.

19. Teaching Award of the Department of Computer Science and Engineering, University of Notre Dame, 1998.
20. Guest Editor, Special Issue on Embedded System Design & Optimization, *Journal of Embedded Computing (JEC)*, 2006 - 2007.
21. Guest Editor, Special Issue on Ubiquitous Computing, *International Journal on Pervasive Computing and Communications (JPCC)*, 2006 - 2007.
22. Guest Editor, Special Issue on Design and Programming of Signal Processors for Multimedia Communication, *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology (JVLSI)*, 2006 - 2007.
23. Editor, *Journal of Embedded Computing (JEC)*, 2003 - Present.
24. Editor, *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology (JVLSI)*, 2000 - Present.
25. Editor, *IEEE Transactions on Signal Processing*, handling submissions related to VLSI Systems and Programming Systems, 1999 - 2001.
26. Guest Editor (with Prof. Anantha Chandrakasan at MIT), Special Issue on low power VLSI systems, *IEEE Transactions on VLSI Systems*, published in Dec. 1998.
27. Editor, *Journal of Circuits, systems and Computers*, 1998.
28. NSF CAREER Award, *High-Level Design Methodologies for Time-Optimal and Memory-Optimal Systems*, 1995.
29. 1994 Junior Faculty Enhancement Award of Oak Ridge Associated University in Mathematics/Computer Science.
30. An Honorable alternate of 1993 Junior Faculty Enhancement Award of Oak Ridge Associated University in Mathematics/Computer Science.
31. International Advisory Committee of the 2007 International Workshop on Intelligent Systems and Smart Home (WISH 2007), Niagara Falls, Canada, August 2007.
32. Steering Committee of the International Workshop on Interactive Multimedia & Intelligent Services in Mobile and Ubiquitous Computing 2007 (IMIS2007), Seoul, Korea, April 2007.
33. Advisory Committee of the International Conference on Information Security and Computer Forensics (ISCF 2006), Chennai, India, December 2006.
34. Program Committee of the 27th IEEE Real-Time Systems Symposium (RTSS 2007), Tucson, Arizona, December 2007.
35. Program Committee of the 19th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2007), Cambridge, Massachusetts, November 2007.
36. Program Committee of the 2007 IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2007), Salzburg, Austria, September 2007.
37. Program Committee of the Third International Symposium on Information Assurance and Security (IAS07), Manchester, United Kingdom, August 2007.

38. Program Committee of the IEEE International Conference on Embedded Computer Systems: Architecture, Modeling and Simulation" (IC-SAMOS), Sammos, Greece, July 2007.
39. Program Committee of the 7th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-2007), Hangzhou, China, June 2007.
40. Program Committee of the 27th IEEE Real-Time Systems Symposium (RTSS 2006), Rio de Janeiro, Brazil, December 2006.
41. Program Committee of the 18th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2006), Dallas, Texas, November 2006.
42. Program Committee of 2006 IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2006), Seoul, Korea, October 2006.
43. Program Committee of the 5th bi-annual IFIP Conference on Distributed and Parallel Embedded Systems (DIPES 2006), Braga, Portugal, October 2006.
44. Program Committee of the IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC2006), Taichung, Taiwan, June 2006.
45. Program Committee of the 8th Asia Pacific Web Conference (APWeb), Harbin, China, January 2006.
46. Program Committee of the 17th IASTED International Conference on Parallel and Distributed Computing and Systems (PDCS 2005), Phoenix, Arizona, November 2005.
47. Program Committee of the 8th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-2005), Melbourne, Australia, October 2005.
48. Program Committee of the 18th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), Las Vegas, NV, Sept. 2005.
49. Program Committee of Third IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2005), New York, New York, September 2005.
50. Program Committee of 2005 High Performance Computing and Simulation (HPC&S) Conference, Riga, Latvia, June 2005.
51. Program Committee of the First International Workshop on Security in Networks and Distributed Systems (SNDS 2005) in conjunction with ICPADS 2005, Fukuoka, Japan, July 2005.
52. Program Committee of Information Assurance and Security (IAS 2005), in conjunction with IEEE International Conference on Information Technology: Coding and Computing (ITCC 2005), Las Vegas, Nevada, April 2005.
53. Program Committee of The International Conference on Information Systems- New Generations (ISNG), Las Vegas, NV, April, 2005.
54. Program Committee of The First International Conference on Embedded Software and Systems (ICESSE' 04), Hangzhou, China, Dec. 2004.
55. Program Committee of The International Conference on Information Systems- New Generations (ISNG), Las Vegas, NV, November, 2004.
56. Program Committee of the 16th IASTED International Conference on Parallel and Distributed Computing and Systems, MIT, Cambridge, MA, November, 2004.

57. Program Committee of the ACM/IEEE International Conference on Hardware/Software Codesigns and System Synthesis (CODES+ISSS 2004), Stockholm, Sweden, Sept., 2004.
58. Program Committee of the 17th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), San Francisco, CA, Sept. 2004.
59. Program Committee of The First International Workshop on Networked Embedded Computing (NEC 2004), in conjunction with The 2004 International Conference on Parallel Processing (ICPP 2004), Montreal, Canada, August, 2004.
60. Program Committee of The International Conference on Embedded and Ubiquitous Computing (EUC-04), Aizu, Japan, August, 2004.
61. Program Committee of 2004 High Performance Computing and Simulation (HPC&S) Conference, Magdeburg, Germany, June 2004.
62. Program Committee of Information Assurance and Security (IAS 2004), in conjunction with International Conference on Information Technology: Coding and Computing (ITCC 2004), Las Vegas, Nevada, April 2004.
63. Program Committee of the International Workshop of Embedded Computing (EC-04) in conjunction with the IEEE 24th International Conference on Distributed Computing Systems (ICDCS 2004), Tokyo, Japan, March 2004.
64. Program Committee of the 15th IASTED International Conference on Parallel and Distributed Computing and Systems, Marina del Rey, California, November, 2003.
65. Program Committee of the 2003 International Conference on Parallel Processing (ICPP 2003), Kaohsiung, Taiwan, October 2003.
66. Program Committee of the ACM/IEEE International Conference on Hardware/Software Codesigns and System Synthesis (CODES+ISSS 2003), Newport Beach, California, October 2003.
67. Program Committee of the 2003 The Seventh International Conference on Computer Science and Informatics (CSI 2003), Cary, North Carolina, September 2003.
68. Program Committee of The 2nd Workshop on Hardware/Software Support for Parallel and Distributed Scientific and Engineering Computing (SPDSEC 03), in conjunction with PACT-03, New Orleans, Louisiana, September 2003.
69. Program Committee of the 18th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), Reno, Nevada, August, 2003.
70. Program Committee of the 2003 International Symposium on Parallel Processing and Applications (ISPA 2003), Aizu-Wakamatsu City, Japan, July, 2003.
71. International Program Committee of 2003 High Performance & Large Scale Computing (HP&LSC) Conference, Nottingham, UK, June, 2003.
72. Program Committee of the 5th IEEE International Conference on Algorithms and Architecture for Parallel Processing (ICA3PP2002), Beijing, China, December 2002.
73. Program Committee of the 14th IASTED International Conference on Parallel and Distributed Computing and Systems, Cambridge, MA, November, 2002.
74. Program Committee of the 15th ACM/IEEE International Symposium on System Synthesis (ISSS 2002), Kyoto, Japan, October, 2002.

75. Program Committee of the Workshop on Embedded System Codesign, San Jose, California, September, 2002.
76. Program Committee of the 15th ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), Louisville, Kentucky, September, 2002.
77. Program Committee of the 13th IASTED International Conference on Parallel and Distributed Computing and Systems, November, 2001.
78. Program Committee of the 4th IEEE International Conference on Algorithms and Architecture for Parallel Processing (ICA3PP2000), Hong Kong, December 2000.
79. Program Committee of the 12th IASTED International Conference on Parallel and Distributed Computing and Systems, Las Vegas, Nevada, November, 2000.
80. Program Committee of the 11th IASTED International Conference on Parallel and Distributed Computing and Systems, Cambridge, MA, November, 1999.
81. Program Committee of the IEEE Seventh International Symposium on the Frontiers of Massively Parallel Computation, Annapolis, Maryland, February, 1999.
82. Program Committee of the IEEE/ACM 11th International Symposium on System Synthesis (ISSS 1998), Hsinchu, Taiwan, December, 1998.
83. Program Committee of the 10th International Conference on Parallel and Distributed Computing and Systems, Las Vegas, Nevada, October, 1998.
84. Program Committee of the IEEE/ACM 10th International Symposium on System Synthesis, Antwerp, Belgium, September, 1997.
85. Program Committee of the IEEE Seventh Great Lakes Symposium on VLSI, Urbana, Illinois, March, 1997.
86. Program Committee of the IEEE/ACM Ninth International Symposium on System Synthesis, La Jolla, California, November, 1996.
87. Program Committee of the IEEE Sixth International Symposium on the Frontiers of Massively Parallel Computation, October, 1996.
88. Program Committee of the IEEE Sixth Great Lakes Symposium on VLSI, Ames, Iowa, March, 1996.
89. Program Committee of the IEEE Fifth Great Lakes Symposium on VLSI, Buffalo, New York, March, 1995.
90. Program Committee Co-Chair (with Prof. John Uhran) of the IEEE Fourth Great Lakes Symposium on VLSI, March, 1994, Notre Dame, Indiana. (Co-sponsored by IEEE Computer society, and IEEE Circuits and Systems Society and in cooperation with ACM).
91. Reviewer for Proposals submitted to NSF *Microelectronic systems Architecture Program and Design, Tool and Test Program*.
92. Reviewer for many journals including IEEE Transactions on VLSI Systems, IEEE Transactions on CAD, Journal of VLSI Signal Processing, IEEE Transactions on Circuits and Systems, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Signal Processing, etc.

University Services

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1. UTD Committee on Academic Integrity, University of Texas at Dallas, 2006 - 2008.
2. ECS Dean's Advisory Committee on Continuity, ECS, University of Texas at Dallas, 2006 - Present.
3. School Personnel Review Committee, ECS, University of Texas at Dallas, 2004 - 2006.
4. Committee on Effective Teaching, University of Texas at Dallas, Representative member for ECS school, 2003 - 2005.
5. Coordinator, Computer Systems Group, Department of Computer Science, University of Texas at Dallas, Jan. 2002- 2004.
6. Committee on Academic Affairs, Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, 2003 - 2005.
7. Committee on Effective Teaching, Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, 2002 - 2005.
8. University Internal Research Committee, University of Texas at Dallas, 2002 - 2004.
9. Committee on Educational Policy, University of Texas at Dallas, August 2001 - August 2003.
10. Founding Director, *Hardware/Software Co-Design Lab for DSP and Communications*, University of Texas at Dallas, 2000.
11. Founding Co-director, *Computer and Network Architecture Lab*, University of Texas at Dallas, 2000.
12. Associate Chair of the Department of Computer Science, University of Texas at Dallas, May 2001 - Dec. 2001.
13. Chair, Ph.D. Degree Program Committee of the Department of Computer Science, University of Texas at Dallas, Sept. 2000 - August 2001.
14. Associate Chair of the Department of Computer Science and Engineering, University of Notre Dame, August 1995 - August 2000.
15. Graduate Committee of the Department of Computer Science and Engineering, University of Notre Dame, October 1992 - August 2000.
16. College Council, Engineering College, University of Notre Dame, August 1995 - May 1997.
17. Honesty Committee of the Department of Computer Science and Engineering, University of Notre Dame, August 1994 - August 2000.

Patents

1. "Parallel Variable Length Pattern Matching Using Hash Table," C Xue, E. H.-M. Sha, M. Qiu, Q. Zhuge, U. S. Patent, Serial No. 11/307,864.
2. "Minimize Energy Consumption Using Optimal Voltage Assignment Algorithm," M. Qiu, E. H.-M. Sha, C. Xue, Q. Zhuge, U. S. Patent, Serial No. 11/307,924.

Books, Book Chapters, Special Issues

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1. *Embedded and Ubiquitous Computing*, Edwin Sha, S. Han, C. Xu, M. Kim, L. T. Yang, and B. Xiao, ISBN: 3-540-36679-2, Springer-Verlag, 2006.
2. M. Liu, Q. Zhuge, Z. Shao, C. Xue, M. Qiu and E. H.-M. Sha, "Optimizing Nested Loops with Loop Distribution and Loop Fusion," Book Chapter in *Embedded Systems: Status and Perspective*, American Scientific Publishers, 2007.
3. Special Issue on Embedded System Design & Optimization, *Journal of Embedded Computing (JEC)*, Guest Editor, 2006 - 2007.
4. Special Issue on Ubiquitous Computing, *International Journal on Pervasive Computing and Communications (JPCC)*, Guest Editor, 2006 - 2007.
5. Special Issue on Design and Programming of Signal Processors for Multimedia Communication, *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology (JVLSI)*, Guest Editor, 2006 - 2007.
6. Special Issue on Low Power VLSI Systems, *IEEE Transactions on VLSI Systems*, Guest Editor, 1998.

Refereed Publications

Regular Journal Papers Published or Accepted for Publication

1. C. Xue, Z. Shao, and E. H.-M. Sha, "Maximizing Parallelism for Nested Loops via Loop Striping," Accepted in *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology*, Dec. 2006.
2. Z. Shao, M. Wang, Y. Chen, C. Xue, M. Qiu, L. T. Yang and E. H.-M. Sha, "Real-Time Dynamic Voltage Loop Scheduling for Multi-Core Embedded Systems," Accepted in *IEEE Transactions on Circuits and Systems*, Nov. 2006.
3. M. Qiu, C. Xue, Z. Shao, M. Liu and E. H.-M. Sha, "Energy Minimization for Heterogeneous Wireless Sensor Networks," Accepted in *Journal of Embedded Computing (JEC)*, Sept. 2006.
4. M. Qiu, Z. Jia, C. Xue, Z. Shao and E. H.-M. Sha, "Voltage Assignment with Guaranteed Probability Satisfying Timing Constraint for Real-time Multiprocessor DSP," in *The Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology (JVLSI)*, February, 2007, 19 pages.
5. C. Xue, Z. Shao, M. Liu, M. Qiu and E. H.-M. Sha, "Optimizing Nested Loops with Iterational and Instructional Retiming," Accepted in *Journal of Embedded Computing (JEC)*, May 2006.
6. Chantapornchai, W. Surakumpolthorn, and E. H.-M. Sha, "Design Exploration with Imprecise Latency and Register Constraints," in *IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems (TCAD)*, Vol. 25, No. 12, Dec. 2006, pp. 2650 - 2662.
7. T. O'Neil and E. H.-M. Sha, "Time-Constrained Loop Scheduling with Minimal Resources," in *Journal of Embedded Computing (JEC)*, Vol. 2, No. 1, October 2006, pp. 103 - 117.

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8. C. Xue, Z. Shao, Q. Zhuge, B. Xiao, M. Liu, and E. H.-M. Sha, "Optimizing Address Assignment for Scheduling DSPs with Multiple Functional Units," in *IEEE Transactions on Circuits and Systems*, Vol. 53, No. 9, September 2006, pp. 976 - 980.
9. Z. Shao, J. Cao, K. Chen, C. Xue, and E. H.-M. Sha, "Hardware/software Optimization for Array & Pointer Bound Checking Against Buffer Overflow Attacks," in *Journal of Parallel Distributed Computing*, Vol. 66, No. 9, September 2006, pp. 1129 - 1136.
10. Q. Zhuge, C. Xue, Z. Shao, M. Liu, M. Qiu and E. H.-M. Sha, "Design Optimization and Space Minimization Considering Timing and Code Size via Retiming and Unfolding," in *Journal of Microprocessors and Microsystems*, Vol. 30, Issue 4, June 2006, pp. 173-183.
11. Z. Shao, Q. Zhuge, M. Liu, C. Xue, E. H.-M. Sha and B. Xiao, "Algorithms and Analysis of Scheduling for Loops with Minimum Switching," in *International Journal of Computational Science and Engineering (IJCSE)*, Vol. 2, May 2006, pp. 88-97.
12. K. Chen and E. H.-M. Sha, "The Fat-Stack and Universal Routing in Interconnection Networks," in *Journal of Parallel and Distributed Computing*, Vol. 66, No. 5, May 2006, pp. 705-715.
13. Z. Shao, C. Xue, Q. Zhuge, M. Qiu, B. Xiao and E. H.-M. Sha, "Security Protection and Checking for Embedded System Integration Against Buffer Overflow Attacks via Hardware/Software," in *IEEE Transactions on Computers*, Vol. 55, No. 4, April 2006, pp. 443 - 453.
14. Z. Shao, C. Xue, Q. Zhuge, B. Xiao and E. H.-M. Sha, "Loop Scheduling with Timing and Switching-Activity Minimization for VLIW DSP" in *ACM Transactions on Design Automation of Electronic Systems*, Vol. 11, No. 1, Jan. 2006, pp. 165 - 185.
15. Z. Shao, Q. Zhuge, C. Xue and E. H.-M. Sha, "Efficient Assignment and Scheduling for Heterogeneous DSP Systems," in *IEEE Transaction on Parallel and Distributed Systems*, Vol. 16, No. 6, June 2005, pp. 516-525.
16. T. W. O'Neil, and E. H.-M. Sha, "Combining Extended Retiming and Unfolding for Rate-Optimal Graph Transformation," in *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology*, Vol. 39, March 2005, pp. 273-293.
17. Z. Shao, Q. Zhuge, Y. Zhang and E. H.-M. Sha, "Efficient Scheduling for Low-Power High-Performance DSP Applications," in *International Journal of High Performance Computing and Networking (IJHCN)*, Vol. 1, 2005, pp. 4-16.
18. Y. Jiang, A. Al-Sheraidah, Y. Wang, E. H.-M. Sha and J. Chung, "A Novel Multiplexer-Based Low-Power Full Adder," in *IEEE Transactions on Circuits and Systems II*, Vol. 51, No. 7, July 2004, pp. 345-348.
19. B. Xiao, Q. Zhuge and E. H.-M. Sha, "Efficient Algorithms for Dynamic Update of Shortest Path Tree in Networking," in *ISCA International Journal of Computers and Their Applications*, Vol. 11, No. 1, March 2004, pp. 60-75.
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21. Q. Zhuge, B. Xiao, E. H.-M. Sha, and C. Chantapornchai, "Efficient Variable Partitioning and Scheduling for DSP Processors with Multiple Memory Modules," in *IEEE Transactions on Signal Processing*, Vol. 52, No. 4, April 2004, pp. 1090-1099.

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22. Q. Zhuge, B. Xiao, and E. H.-M. Sha, "Code Size Reduction Technique and Implementation for Software-Pipelined DSP Applications," in *ACM Transactions on Embedded Computing Systems (TECS)*, Vol. 2, No. 4, Nov. 2003, pp. 590-613.
23. E. H.-M. Sha, T. W. O'Neill, and N. Passos, "Efficient Polynomial-time Nested Loop Fusion with Full Parallelism," in *International Journal of Computers and Their Applications*, Vol. 10, No. 1, March 2003, pp. 9-24.
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25. X. Hu, T. Zhou and E. H.-M. Sha, "Estimating Probabilistic Timing Performance for Real-time Embedded systems," in *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Vol. 9, Number 6, Dec. 2001, pp. 833-844.
26. T. W. O'Neill, and E. H.-M. Sha, "Retiming Synchronous Data-Flow Graphs to Minimize Execution Time," in *IEEE Transactions on Signal Processing*, Vol. 49, Number 10, October 2001, pp. 2397-2407.
27. Z. Wang, T. W. O'Neill and E. H.-M. Sha, "Optimal Loop Scheduling for Hiding Memory Latency Based on Two Level Partitioning and Prefetching," in *IEEE Transactions on Signal Processing*, Vol. 49, Number 11, November 2001, pp. 2853-2864.
28. Z. Wang, T. W. O'Neill and E. H.-M. Sha, "Minimizing Average Schedule Length under Memory Constraints by Optimal Partitioning and Prefetching," in *Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology*, Vol. 27, Jan. 2001, pp. 215-233.
29. C. Chantapornchai, E. H.-M. Sha, and X. S. Hu, "Efficient Module Selections for Finding Highly Acceptable Designs based on Inclusion Scheduling," in *Journal of Systems Architecture*, Vol. 46, No. 11, 2000, pp. 1047-1071.
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31. C. Chantapornchai, E. H.-M. Sha, and X. S. Hu, "Efficient Acceptable Design Exploration Based on Module Utility Selection," in *IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems (CAD)*, Vol. 19, No. 1, Jan. 2000, pp. 19-29.
32. F. Chen, T. W. O'Neill, and E. H.-M. Sha, "Optimizing Overall Loop Schedules using Prefetching and Partitioning," in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 11, No. 6, June 2000, pp. 604-614.
33. S. Tongshima, E. H.-M. Sha, C. Chantapornchai, D. Surma and N. Passos, "Probabilistic Loop Scheduling for Applications with Uncertain Execution Time," in *IEEE Transactions on Computers*, Vol. 49, No. 1, Jan. 2000, pp. 65-80.
34. S. Tongshima, T. W. O'Neill, C. Chantapornchai and E. H.-M. Sha, "Properties and Algorithms for Unfolding of Probabilistic Data-flow Graphs," in *Journal of VLSI Signal Processing*, Vol. 25, No. 3, July 2000, pp. 215-234.
35. E. H.-M. Sha, and C. Chantapornchai, "Optimizing Page Replacement for Multiple-Level Memory Hierarchy," (regular paper) in *International Journal of Computers and Their Applications*, Vol. 6, No. 4, Dec. 1999, pp. 212-222.

36. N. Passos and E. H.-M. Sha, "Scheduling of Uniform Multi-Dimensional Systems under Resource Constraints," (regular paper) in *IEEE Transactions on VLSI Systems*, Vol. 6, No. 4, December 1998, pp. 719-730.
37. S. Tongshima, E. H.-M. Sha, C. Chantapornchai, and N. Passos, "Efficient Loop Scheduling and Pipelining for Applications with Non-uniform Loops," (regular paper) in *IEEE International Journal of Parallel and Distributed Systems and Networks*, Vol. 1, No. 4, 1998, pp. 204-211.
38. S. Tongshima, C. Chantapornchai, E. H.-M. Sha and N. Passos, "Reducing Data Hazards on Multi-pipelined DSP Architecture with Loop Scheduling," (regular paper) in *Journal of VLSI Signal Processing*, Vol. 18, 1998, pp. 111-123.
39. D. R. Surma and E. H.-M. Sha, "Collision Graph based Communication Scheduling for Parallel Systems," (regular paper) in *International Journal of Computers and Their Applications*, Vol. 5, No. 1, March 1996, pp. 11-22.
40. L.-F. Chao and E. H.-M. Sha, "Scheduling Data-Flow Graphs via Refining and Unfolding," (regular paper) in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 8, No. 12, December 1997, pp. 1259-1267.
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43. L.-F. Chao, E. H.-M. Sha and A. LePaugh, "Rotation Scheduling: A Loop Pipelining Algorithm," (regular paper) in *IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems (CAD)*, Vol. 16, No. 3, March 1997, pp. 229-239.
44. N. Passos, E. H.-M. Sha and L.-F. Chao, "Multi-Dimensional Interleaving for Synchronous Circuit Design Optimization," (regular paper) in *IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems (CAD)*, Vol. 16, No. 2, February 1997, pp. 146-159.
45. Q. Wang, E. H.-M. Sha and N. Passos, "Optimal Data Scheduling for Uniform Multi-dimensional Applications," *IEEE Transactions on Computers*, Vol. 45, No. 12, December 1996, pp. 1439-1444.
46. N. Passos and E. H.-M. Sha, "Achieving Full Parallelism using Multi-Dimensional Retiming," (regular paper) in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 7, No. 11, November 1996, pp. 1150-1163.
47. M. Sheliga and E. H.-M. Sha, "Hardware/Software Co-design With the HMS Framework," (regular paper) in *Journal of VLSI Signal Processing Systems*, Vol. 13, No. 1, August 1996, pp. 37-56.
48. N. Passos and E. H.-M. Sha, "Synchronous Circuit Optimization via Multi-Dimensional Retiming," (regular paper) in *IEEE Transactions on Circuits and Systems, vol II - Analog and Signal Processing*, Vol. 43, No. 7, July 1996, pp. 507-519.

49. N. Passos, E. H.-M. Sha and S. C. Bass, "Optimizing DSP Flow Graphs via Schedule-Based Multi-Dimensional Retiming," *IEEE Transactions on Signal Processing*, Vol. 44, No. 1, January, 1996, pp. 150-156.
50. L.-F. Chao and E. H.-M. Sha, "Static Scheduling for Synthesis of DSP Algorithms on Various Models," (regular paper) in *Journal of VLSI Signal Processing*, Vol. 10, 1995, pp. 207-223.
51. E. H.-M. Sha and K. Steiglitz, "Maintaining Bipartite Matchings in the Presence of Failures," (regular paper) in *Networks Journal*, Vol. 23, No. 5, August 1993, pp. 459-471.
52. E. H.-M. Sha and K. Steiglitz, "Reconfigurability and Reliability of Systolic/Wavefront Arrays," (regular paper) in *IEEE Transactions on Computers*, Vol. 42, No. 7, July 1993, pp. 854-862.
53. E. H.-M. Sha and K. Steiglitz, "Error Detection in Arrays via Dependency Graphs," (regular paper) in *Journal of VLSI Signal Processing*, Vol. 4, No. 4, October 1992, pp. 331-342.
- Submitted Journal Papers Waiting for Review Decision
54. K. Chen, E. H.-M. Sha, and S. Q. Zheng, "Fast and Noniterative Scheduling for Input-Queued Switches with Unbuffered Crossbars," submitted to *Journal of Systems Architecture*.
55. K. Chen, E. H.-M. Sha, and S. Q. Zheng, "Provisioning QoS in Input-Queued Switches with Noniterative Schedulers," submitted to *Computer Networks*.
56. C. Xue, Z. Shao, M. Liu, M. Qiu and E. H.-M. Sha, "Iterational Retiming with Partitioning: Loop Scheduling with Complete Memory Latency Hiding," submitted to *ACM Transactions on Embedded Computing Systems*.
57. C. Xue, Q. Zhuge, Z. Shao, M. Qiu and E. H.-M. Sha, "Maximize Parallelism for Nested Loops with Iterational and Instructional Retiming," submitted to *IEEE Transactions on Parallel and Distributed Systems*.
58. M. Qiu, Z. Shao, Q. Zhuge, C. Xue, M. Liu, and E. H.-M. Sha, "Minimum-Cost Assignment Considering Timing Probability for Heterogeneous DSP Systems," submitted to *IEEE Transactions on Computers*.
59. C. Xue, Z. Jia, Z. Shao, M. Qiu and E. H.-M. Sha, "Optimize Address Assignment with Array and Loop Transformations for Minimizing Schedule Length," submitted to *IEEE Transactions on Circuits and Systems*.
60. M. Liu, Q. Zhuge, Z. Shao, C. Xue and E. H.-M. Sha, "General Loop Fusion Technique with Improved Timing Performance and Minimal Code Size," submitted to *IEEE Transactions on Computers*.
61. K. Chen and E. H.-M. Sha, "Universal Routing and Performance Assurance for Distributed Networks," submitted to *Journal of Interconnection Networks*.
62. M. Liu, Q. Zhuge, Z. Shao and E. H.-M. Sha, "Efficient Loop Fusion for Two-level Loops Considering Timing and Code Size," submitted to *Journal of Embedded Computing*.
63. B. Xiao, J. Cao, Q. Zhuge, Z. Shao and E. H.-M. Sha, "Graph Partitioning Problem Related to Adaptive Mobile Wireless Networks," submitted to *Journal of Mobile Networks and Applications*.

64. B. Xiao, J. Cao, Q. Zhuge, Z. Shao and E. H.-M. Sha, "An Efficient Algorithm for Dynamic Shortest Path Tree Update in Network Routing," submitted to *IEEE Transactions on Parallel and Distributed Systems*.
65. Q. Zhuge, C. Xue, Z. Shao, M. Qiu and E. H.-M. Sha, "Timing Optimization via Nest-Loop Pipelining Considering Code Size," submitted to *Journal of Microprocessors and Microsystems*.
66. Z. Wang and E. H.-M. Sha, "Multiple Loop Nests Scheduling by Integrating Loop Partitioning and Data Padding," submitted to *ACM Transactions in Embedded Computing Systems*.
67. T. W. O'Neill, S. Tongsima, and E. H.-M. Sha, "Extended Retiming: Transforming Data-Flow Graphs to Minimize Clock Period," submitted to *International Journal of Computers and Their Applications*.
- Refereed Conference Papers
68. M. Qiu, Z. Shao, C. Xue and E. H.-M. Sha, "Energy Minimization with Soft Real-time and DVS for Uniprocessor and Multiprocessor Embedded Systems," in *Proc. The 10th IEEE International Conference on Design, Automation and Test in Europe (DATE)*, Nice, France, April 2007.
69. M. Qiu, Z. Jia, Z. Shao, C. Xue, Y. Liu and E. H.-M. Sha, "Loop Scheduling to Minimize Cost with Data Mining and Prefetching for Heterogeneous DSP," in *Proc. The 18th IASTED International Conference on Parallel and Distributed Computing and Systems (IASTED PDCS)*, Dallas, Texas, Nov. 2006, pp. 572 - 577.
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73. M. Qiu, C. Xue, Z. Shao, Q. Zhuge, M. Liu and E. H.-M. Sha, "Efficient Algorithm of Energy Minimization for Heterogeneous Wireless Sensor Network," *Proc. 2006 IFIP International Conference on Embedded and Ubiquitous Computing (ELIC 2006)*, Seoul, Korea, August, 2006, pp. 25 - 34.
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76. M. Qiu, Z. Shao, Q. Zhuge, C. Xue, M. Liu and E. H.-M. Sha, "Efficient Assignment with Guaranteed Probability for Heterogeneous Parallel DSP" in *Proc. The 12th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2006)*, Minneapolis, MN, July 2006, pp. 623 - 630.
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81. T. W. O'Neill and E. H.-M. Sha, "Static Scheduling of Split-Node Data Flow Graphs," in *Proc. The 17th IASTED International Conference on Parallel and Distributed Computing Systems*, Phoenix, Arizona, Nov. 2005, pp. 125-130.
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201. N. Passos, E. H.-M. Sha and L.-F. Chao, "Fully Parallel Synchronous Circuit Design using Multi-Dimensional Interleaving," in *Proc. IEEE International Conference on Computer Design*, Austin, Texas, October, 1995, pp 440-445.
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203. D. R. Surma and E. H.-M. Sha, "Application-Specific Communication Scheduling on Parallel Systems," in *Proc. IEEE International Conference on Parallel and Distributed Computing Systems*, Orlando, Florida, September, 1995, pp. 137-139.
204. S. Tongsima, N. Passos and E. H.-M. Sha, "Architecture-Dependent Loop Scheduling via Communication-Sensitive Remapping," in *Proc. International Conference on Parallel Processing*, Wisconsin, August, 1995, pp. 97-104.
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209. H. Zhao, N. M. Sabine and E. H.-M. Sha, "Improving Self-Timed Pipeline Ring Performance Through The Addition of Buffer Loops," in *Proc. IEEE Great Lakes Symposium on VLSI*, March, 1995, pp 218-223.
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211. S. Tongsima, N. Passos and E. H.-M. Sha, "Communication Sensitive Rotation Scheduling," in *Proc. 1994 IEEE International Conference on Computer Design*, Cambridge, Massachusetts, October, 1994, pp 150-153.
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216. M. Sheliga and E. H.-M. Sha, "Global Node Reduction of Linear Systems Using Ratio Analysis," in *Proc. IEEE Seventh International Symposium on High-Level Synthesis*, Niagara-on-the-Lake, Canada, May, 1994, pp. 140-145.
217. N. Passos, E. H.-M. Sha and S. C. Bass, "Schedule-Based Multi-Dimensional Relining on Data-Flow Graphs," in *Proc. 1994 International Parallel Processing Symposium*, Cancun, Mexico, April, 1994, pp. 195-199.
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219. L.-F. Chao, A. LaPaugh and E. H.-M. Sha, "Rotation Scheduling: A Loop Pipelining Algorithm," in *Proc. 30th ACM/IEEE Design Automation Conference*, (nominated for the Best Paper Award), Dallas, Texas, June, 1993, pp. 566-572.
220. L.-F. Chao and E. H.-M. Sha, "Efficient Retiming and Unfolding," in *Proc. 1993 IEEE Int'l Conf. on Acoustic, Speech, and Signal Processing*, Minneapolis, Minnesota, April, 1993, pp. 1421-1424.
221. L.-F. Chao and E. H.-M. Sha, "Static Scheduling of Uniform Nested Loops," in *Proc. 7th International Parallel Processing Symposium*, Newport Beach, California, April, 1993, pp.254-258.
222. K. Steigitz and E. H.-M. Sha, "Maintaining Bipartite Matchings in the Presence of Failures," in *Proc. of 7th International Parallel Processing Symposium*, (Long Paper), Newport Beach, California, April, 1993, pp. 57-64.
223. L.-F. Chao and E. H.-M. Sha, "Rate-Optimal Static Scheduling for DSP Data-Flow Programs," in *Proc. IEEE Third Great Lakes Symposium on VLSI*, March 1993, pp 80-84.
224. L.-F. Chao, E. H.-M. Sha and A. LaPaugh, "Scheduling Cyclic Data-Flow Graphs by Retiming with Resource Constraints," in *Proc. ACM/IEEE Sixth International Workshop on High-Level Synthesis*, Dana Point, California, November, 1992, pp. 111-134.
225. L.-F. Chao and E. H.-M. Sha, "Retiming and Unfolding Data-Flow Graphs," in *Proc. 1992 International Conference on Parallel Processing*, St. Charles, Illinois, August, 1992, pp. 11-33-40.
226. L.-F. Chao and E. H.-M. Sha, "Algorithms for Min-Cut Linear Arrangements of Outer-planar graphs" in *Proc. 1992 IEEE Int'l Symposium on Circuits and Systems*, San Diego, California, May, 1992, pp. 1851-1854.
227. K. Steigitz and E. H.-M. Sha, "An Error-Detectable Array for All-Substring Comparison," in *Proc. 1992 IEEE Int'l Symposium on Circuits and Systems*, San Diego, California, May, 1992, pp. 2941-2944.
228. L.-F. Chao and E. H.-M. Sha, "Efficient Distributed Reconfiguration for Binary Trees on Diogenes Model," in *Proc. 1992 Int'l Phoenix Conf. on Computers and Communications*, Scottsdale, Arizona, April, 1992, pp. 464-471.

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230. L.-F. Chao and E. H.-M. Sha, "Unfolding and Retiming Data-Flow DSP Programs for RISC Multiprocessor Scheduling," in *Proc. 1992 IEEE Int'l Conf. on Acoustic, Speech, and Signal Processing*, San Francisco, California, March, 1992, Vol. 5, pp. 565-568.
231. L.-F. Chao and E. H.-M. Sha, "Optimizing Synchronous Systems via Retiming and Unfolding," in *Proc. 1992 Workshop on Timing Issues in the Specification and Synthesis of Digital Systems*, March, 1992.
232. K. Steiglitz and E. H.-M. Sha, "Explicit Constructions for Reliable Reconfigurable Array Architectures," in *Proc. Third IEEE Symposium on Parallel and Distributed Processing*, Dallas, Texas, December, 1991, pp. 640-647.
233. E. H.-M. Sha and L.-F. Chao, "Design for Easily Applying Test Vectors to Improve Delay Fault Coverage," in *Proc. 1991 IEEE Int'l Conf. on Computer-Aided Design*, Santa Clara, California, November, 1991, pp. 500-503.
234. L.-F. Chao and E. H.-M. Sha, "Planar Linear Arrangements for Outerplanar graphs," in *Proc. 1991 Second Great Lakes Computer Science Conference*, Kalamazoo, Michigan, October, 1991.
235. K. Steiglitz and E. H.-M. Sha, "Reconfigurability and Reliability of Systolic/Wavefront Arrays," in *Proc. 1991 IEEE Int'l Conf. on Acoustic, Speech, and Signal Processing*, Toronto, Canada, May 1991, Vol. 2, pp. 1001-1004.

References: Available upon request.

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Research Interests:

Telecommunication networks, parallel computation networks, algorithms, complexity classes, picture processing, automata theory, graph/network algorithms, combinatorial problems, computational biology, and issues in information security.

Education

Ph.D., The Pennsylvania State University (Computer Science), 1971;
M.S., California State University at Hayward (Mathematics), 1967;
B.S., California State Polytechnic University at San Luis Obispo (Math.), 1966.

Employment

1985 - present

Founders Professor of Computer Science, Univ. Texas at Dallas
(Program Head: Jan. 1987- Sept. 30, 1995)

1971 - 1985

Professor of Electrical Engineering and Computer Science,
Northwestern University, Evanston, Illinois, 60201
(promoted to rank of Full Professor)

Visiting professorships

Distinguished Visiting Professor of Math/Statistics, Miami University of Ohio, 1998-99 Academic Year; also held this position in 1991

Distinguished Visiting Professor of Computer Science at the University of Victoria (Canada), 1988

Fulbright Senior Research Professor, National Technical University of Greece, 1982-83

Visiting Professor of Mathematics/Computer Science, University of Paderborn (Germany), 1979-1980 (and additional short guest visits in 1978, 1981, 1985, 1990, 1993, and 1996)

Computer Science Program Head (UTD: 1987-1995)

instrumental in the design and development of special tracks in the Computer Science M.S. Program for *software engineering* and *telecommunication networks*

arranged for new office space in the Multi-Purpose Bldg. (1988) and office and laboratory space in the new Erik Jonsson Engineering and Computer Science Building (1992)

arranged for replacement of part-time lecturers with five permanent senior lecturers (to improve teaching and student advising)

established research laboratories for parallel and distributed computing, high performance computing, software engineering, graphics, artificial intelligence, graph drawing/visualization and CAD, image processing, programming languages, and telecommunication networks in the new Erik Jonsson Engineering and Computer Science Building

increased support staff from three part-time employees to five full-time employees: one administrative assistant, two secretaries for the C. S. graduate admissions and financial aid office, one secretary for the C. S. undergraduate student office, and one secretary for faculty support services.

Professional Experience

Workshop Chair for ISPAN 2005 (held in Las Vegas, Nevada); Program Committee Chair for Algorithms and Applications for the conference: ISPAN 2004 (held in May, 2004 in Hong Kong); General Chair for ISPAN 2002 (held in May, 2002 in Manila, Philippines); General Chair for ISPAN 2000 (held in December 2000 in Dallas/Richardson)

Editorial board member for journal: *Journal on Interconnection Networks* (JOIN)

Founding (permanent) member of the steering committee of the IEEE Symposium on Parallel and Distributed Processing (SPDP), including duty as chairman of the Steering Committee for the 1996 Symposium.

Steering committee member for Int'l Parallel and Distributed Processing Symposium (IPDPS), 1996-

and the Int'l Conf. on Parallel and Distributed Computing and Systems (IPDCS), 1997-

Member of 1997 NSF IGERT panel (for the evaluation of research proposals)

Member of national committee for selecting and awarding Fulbright Grants (1999-); chaired this committee during (1982-83).

Recent program committee memberships:

International Conference on Parallel and Distributed Computing and Systems (PDCS '98, '99, '00, '01)

IEEE Symposium on Parallel and Distributed Computing (SPDP '96, '98)

International Symposium on Parallel Architectures, Algorithms, and Networks

(ISPAN '96, '97, '98, '99, '00, '01, '02, '04)

WADS '97, WADS '98, WADS '99 (Workshop on Algorithms and Data Structures)

EURO-PDS '97, EURO-PDS '98 (Europeans Parallel and Distributed Processing

Symposium)

Annual Conferences on High Performance Computers (HPSC '96, '97, '01)

Previous program committee memberships:

IEEE Symposium on Parallel and Distributed Computing (SPDP), 1989, 1990, and 1991

IEEE Symposium on Foundations of Computer Science (FOCS), 1981, 1984, and 1986

International Conference on Automata, Languages, and Programming (ICALP), 1981

Aegean Workshop on Computing, 1986

Mathematical Foundations of Computer Science (MFCS), 1986

Editorial board for the journal *Computers and Artificial Intelligence*, name changing to *Computing and Informatics* (1999.)

Advisory/Editorial board for *Journal of Graph Algorithms and Applications*

Guest editor of *Mathematical Systems Theory* for selected papers from 1981 IEEE Symp. on Foundations of Computer Science and for special issue of *Theoretical Computer Science* for selected papers from ICALP '85.

Referee for funding agencies, research journals, conference submissions, and book publishers.

Member of the Steering Committee (and principal organizer) of the Workshop on Algorithms in the Mid-Southwest (WARM) and former member of steering committee for the Midwest Theory of Computing Symposium. (Presented papers at several occurrences of both WARM and Midwest Theory Workshops.)
Local Arrangements Chair for 1982 IEEE Foundations of Computer Science Symp.

Session chairman at:

International Symposium on Parallel Architectures, Algorithms, and Networks, (2005, '04, '02, '00, '99, '97, '96, and others earlier)
IEEE Symposium on Parallel and Distributed Computing, '01, '96
DIMACS Workshop on Multicasting, May 2001
Workshop on Interconnection Networks, Fordham University, New York, '01
Workshop on Broadcasting and Gossiping in Networks, Vancouver Island, Canada, 1994
DIMACS workshop on Parallel Algorithms and Architectures, Rutgers University, 2001, 1992
ACM Symposium on Parallel Algorithms and Architectures, Velen, Germany, 1993
International Workshop on Interconnection Networks, Luminy, France, '95, '93
International Nixdorf Symposium on Parallel Algorithms and Architectures, Paderborn, Germany, 1992
DIMACS workshop on Interconnection Networks, Rutgers University, 1992
IEEE FOCS, IEEE SPDP, ACM SPAA, and MFCS (on several occasions)

Participant in workshop on Computational Problems in Phylogeny (February, 1995)

Invited colloquium speaker at universities within the U.S., France, Germany, Italy, Austria, Israel, The Netherlands, Czechoslovakia, Poland, Greece, Canada, Japan, Korea, and the Philippines.

1996 Polykarp Kusch lecture at UTD: *Permutations, Pancakes, and Phylogeny* (university funded honor awarded to one member of the faculty each year)

Invited presentation at the 11th Int'l Conference on Mathematical and Computational Modeling and Scientific Computing: *Embedding Multidimensional Meshes and Arrays into Hypercubes*.

Consultant for *Pinpoint Communications, Inc.* (concerning efficient algorithms for solving location problems).
Consultant for *Nortel Networks* (concerning efficient algorithms for partitioning cellular space for mobile telephone networks to save on paging and registration costs), 1998-99

University Committees

Chair of Computing Group in the Computer Science Department (2004-2006)
Member of Intellectual Property Rights Committee; chair during 2001-02
Member of Research Council
Member of Computer Science Search (New Faculty) Committee (1995-96)
Advisory Council for Erik Jonsson School of Engineering and Computer Science (1987-95)
Computer Science Curriculum Committee, chairman (1996-98)
Computer Science Graduate Admissions and Financial Aid Committee (1986-87)
Search Committee for Dean of Erik Jonsson School of Engineering and Computer Science (1986 and 1995)
Ph.D. Qualifying Examination Committee (Algorithms, Compiler Construction, Automata Theory, Formal Languages, Computability and Complexity)
Committee on Qualifications (university wide committee for overseeing tenure/promotion decisions)
Chaired several ad-hoc committees for promotion and tenure decisions
Previously member of Committee on Teaching Effectiveness

Funded Research Projects

The Design and Analysis of Logical Data Structures for the Efficient Management of Encryption Keys to Support Secure Network Management, James Madison University, Contract V01-198-05, \$20,000, 2003. (to be extended);

Automated Semiconductor Defect Management, Texas Advanced Research/Technology Program, 1995-1997 (\$67,750)

Defect Classification Algorithms, Research Supported by Interagency Contract with Texas Tech University; Support Period: 1995-7 (\$16,000)

Design of Optimal Survivable Networks, Alcatel Network Systems, Support period February 1993--August, 1994; \$99,997 (with I.G. Tollis)

Advanced Network Topologies for Network Survivability, Alcatel Network Systems, Support period June 1992--February 1993; \$270,000 (with G. R. Dattatreya, E. Dekel, J. Fonseka, K. Kiasaleh, I. G. Tollis, and S. Venkatesan)

Convex Computer Corporation (1990-91): \$7,500
 Texas Advanced Research Program (1988-90): \$184,721 (with I. G. Tollis)
 British Columbia Advanced Systems Institute (1988): \$15,600
 Cray Computer Corporation (1988-89): \$52,500 NATO (1985): \$5,000
 American Electronics Association (1987): \$6,755
 Texas Instruments Corporation (1986): \$36,000 Fulbright Fellowship (1982-83)
 National Science Foundation (1974-83): three separate grants funded for over \$200,000

Student Supervision/Teaching

Supervisor of 24 completed Ph.D. students; current supervisor of three Ph.D. students.

Completed Ph.D. students:

M.-J. Chung (deceased-Mich. State U.)	J. Turner (Washington U., St. Louis)
J. Ellis (U. Victoria, Canada))	B. Litow (James Cook University, Australia)
M. Elberfeld (Bell Labs)	J. Pomes (Bell Labs)
F. Makedon (Chair, U. T. Arlington.)	T. H. Sun (Belcore Research)
S. Bettayeb (U. Houston, Clear Lake)	S. Simonson (Stonehill U.)
J. Lee (Wycliff Bible Translators)	C. Kim (U. Oklahoma)
A. Dingle (Seattle U.)	T. Peng (Creighton U.)
D. Sang (Calif. State Polytechnic)	B. Cong (Calif. State at Fullerton Univ.)
S. Madhavapeddy (CEO: Sipera Systems)	M. Heydari (James Madison University)
L. Morales (Texas A&M -Commerce)	D. Doctor (Kodak, Inc. Laboratories)
Douglas Bass (St. Thomas U.)	Taoyu Zhang (Intel Corp.)
Charles Shields (U.T.D.)	Sherry Fong (Valdosta State U.)

Completed M.S. students:

(only those co-authoring journal or conference papers):

A. Zalcberg (deceased)	W. M. Evangelist (Florida Atlantic U.)
A. Arora (Illinois Inst. Tech.)	J. Nagarajao (IBM)
W. Voit (Ph.D. student at Georgia Tech)	

Current Ph.D. students:

Zhaobing (Andy) Meng	Chalam Chaturi	William Fahle
Postdoctoral Researchers:		
Charles Shields	Doina Bein	
Distinguished Research Assistant		
Raquel Bromberg		

Teaching Honors

One of the finalists for the University of Texas Chancellor's Teaching Excellence Award in 1997

Consistently received top teaching evaluations in Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas (1985-)

One of the finalists for the University of Texas Chancellor's Teaching Excellence Award in 1992

"Teaching Extraordinaire Award", awarded by graduate students in Computer Construction (1988)

Teaching Award (Honorable Mention), Technological Institute, Northwestern University, 1977

Books and Book Chapters

Complexity of Turing Machine Computations: Introduction to Computational Complexity, published by Fachbereich Mathematik-Informatik, FernUniversität Hagen, Hagen, West Germany, 1981 (second edition: 1982), 453 pages.

Graph Layout Problems (with F. Makedon), *Surveys in Computer Science* (ed. H. Maurer), Bibliographisches Institut, Zürich, 1984, pp. 145-192.

The interface between formal language theory and complexity theory (with B. Monien), in *Formal Language Theory: Perspectives and Open Problems* (R. V. Book, ed.), Academic Press, 1980, pp. 287-324.

Journal Publications

"Bounds for Cut-and-Paste Sorting of Permutations" (with D. Cranston, D. West), to appear in *Discrete Mathematics*.

"The sequential sum problem and performance bounds on the greedy algorithm for the on-line Steiner problem". (with Z. Miller, M. Perkel, D. Pritikin) *Networks* 45 (3), pp. 143-164 (2005)

"Combinatorial Optimization of Multicast Key Management," (with L. Morales, M. H. Heydari and M. J. Eltoweissy), *Journal of Network and Systems Management: special issue on Security and Management*, March 2004, pp. 32-50, Kluwer, New York.

"Embedding a Complete Binary Tree into a 3-Dimensional Grid," (with W. Bein, L. Larmore, and C. Shields), *Journal of Interconnection Networks* 5 (2), pp. 111-130 (2004).

"Block Sorting is Hard" (with Wolfgang Bein, Larry Larmore, Sharom Latif) *International Journal of Foundations of Computer Science*, 14 (3) (2003), pp. 425-437.
 "Pancake Problems with Restricted Prefix Reversals and some Corresponding Cayley Networks", (with Douglas Bass), *J. Parallel and Distributed Processing* (3) (2003), pp. 327-336.

"Hamilton Decompositions and $(n/2)$ -Factorizations of Hypercubes", (with Douglas Bass), *Journal of Graph Algorithms and Applications*, Vol. 7, no. 1, 2003, pp. 79-98.

"Expansion of Layouts of Complete Binary Trees into Grids," (with Y.-B. Lin, Zevi Miller, Manley Perkel, Daniel Pritikin), *Discrete Applied Mathematics*, 31, 2003, pp. 611-642.

"Comparing Star and Pancake Networks" (with L. Morales), in Special Issue of Springer Verlag to honor Professor Neil Jones's sixtieth birthday, 2002

One-to-Many Embeddings of Hypercubes into Cayley Graphs Generated by Reversals (with L. Gardner, Z. Miller, and D. Pritikin), *Theory of Computing Systems*, 34, 2001, pp. 399-431.

"Removing Edges from Hypercubes to Obtain Vertex Symmetric Networks with Small Diameter" (with D. Bass), *Telecommunication Systems* 13 (2000), pp. 135-146.

On Leftmove Bounded Picture Languages, (with C. Kim), *Theoretical Computer Science*, 1999.

Removing Edges from Hypercubes to Obtain Vertex Symmetric Networks of Small Degree (with D. Bass), special issue of *Telecommunications Systems on High Performance Systems and Interconnection Networks*, 1999.

A 2-Approximation Algorithm for Genome Rearrangements by Reversals and Transpositions. (with Q.-P. Gu and S. Peng), *Theoretical Computer Science*, 210 (1998), pp. 327-339.

Quadratic Lower Bound for Reverse Card Shuffle (with L. Morales), *Discrete Applied Math*, to appear

On the Diameter of the Pancake Network (with M. Heydari), *J. Algorithms*, October, 1997.

Embedding Star Networks into Hypercubes (with S. Bettayeb, B. Cong, and M. Girou), *IEEE Trans. on Computers* 45,2 (Feb., 1996), pp. 186-192.

Bounded Dilation Maps of Hypercubes into Cayley Graphs on the Symmetric Group (with Z. Miller and D. Pritikin), *Math Systems Theory* 29 (1996), pp. 551-572.

Single Row Routing on Multilayers (with A. Dingle), *J. Computer and System Sci.* 50 1995, pp. 126-131.

Efficient Mappings of Pyramid Networks (with A. Dingle), *IEEE Trans. on Parallel and Distributed Proc.*, Vol. 5, 10, October, 1994, pp. 1009-1017.

Near Embeddings of Hypercubes into Cayley Graphs on the Symmetric Group (with Z. Miller and D. Pritikin), *IEEE Trans. on Computers*, 43,1 (1994), pp. 13-22.

Compressing Grids into Small Hypercubes (with Z. Miller), *Networks* 24 (1994), pp. 327-358.

Graph Separation and Searching (with J. Ellis and J. Turner), *Info. and Computation*, August, 1994.

Simulation of Binary Trees and X-Trees on Pyramid Networks (with A. Dingle), *Journal of Parallel and Distributed Processing* 19 (1993), pp. 119-124.

Difference Bases and Sparse Sensor Arrays, (with D.A. Linebarger and I.G. Tollis), *IEEE Trans. on Information Theory*, Vol. 39, 2 (1993), pp. 716-721.

The 4-star is not a subgraph of any hypercube, (with X. Shen, Q. Hu, M. Girou, and S. Bettayeb), *Info. Processing Letters* 45 (1993), pp. 199-203.

On Reversal-Bounded Picture Languages (with C. Kim), *Theoretical Computer Science* 104 (1992), pp. 185-206.

Embedding Grids into Hypercubes, (with S. Bettayeb and Z. Miller), *Journal of Computer and System Science* 45,3 (1992), pp. 340-366.

Reversal Bounded Picture Languages (with C. Kim), *Theoretical Computer Science* 104 (1992), pp. 185-206.

On the Complexity of Tree Embedding Problems (with S. Simonson), *Information Processing Letters* 44 (1992), pp. 323-328.

A Polynomial Algorithm for Recognizing Bounded Cutwidth in Hypergraphs, (with Z. Miller), *Math Systems Theory* 24 (1991), pp. 11-40.

Embedding One Interconnection Network in Another, (with B. Monien), *Computing Suppl.* 7 (1990), pp. 257-282.

Minimizing Width in Linear Layouts (with F. Makedon), *Discrete Applied Mathematics* 23 (1989), pp. 243-265.

Min Cut is NP-complete for Edge Weighted Trees (with B. Monien), *Theoretical Computer Science* 58 (1988), pp. 209-229.

The Membership and Equivalence Problems for Picture Languages (with C. Kim), *Theoretical Computer Science* 52 (1987), pp. 177-191.

Bandwidth Constrained NP Complete Problems (with B. Monien), *Theoretical Computer Science* 41 (1985), pp. 141-167.

Topological Bandwidth" (with F. Makedon and C. H. Papadimitriou), *SIAM J.*

Algebraic and Discrete Methods 6,3 (July, 1985), pp. 418-444.

Complexity and Decidability for Chain Code Picture Languages (with E. Weizl), *Theoretical Computer Science* 36 (Feb., 1985), pp. 173-202.

Polynomial Algorithms for the Min Cut Problem on Degree Restricted Trees (with M.-J. Chung, F. Makedon, and J. Turner), *SIAM J. Computing*, 14,1 (Feb., 1985), pp. 158-177.

Complete Problems for Space Bounded Subclasses of NP (with M.-J. Chung and W. M. Evangelist), *Acta Informatica* 22 (1985), pp. 379-395.

Improved dynamic programming algorithms for bandwidth minimization and the min cut linear arrangement problem" (with E. M. Gurari), *J. Algorithms*, 5 (1984), pp. 531-546.

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Invited Address: *The interface between formal language theory and complexity theory* (with B. Monien), *Formal Language Theory Conference*, University of California, Santa Barbara, California (1979)

On Eliminating Nondeterminism from Turing Machines that Use Less than Logarithm Writape Space (with B. Monien), *Proc. 6th International Conference on Automata, Languages, and Programming* (ICALP), in Vol. 77, Springer Verlag's *Lecture Notes in Computer Science* (1979), pp. 431-445.

Invited Address: *Proving a Hierarchy of Extended Precedence Languages*, *Formal Language Theory Symposium*, Oberwolfach, Germany (1979)

Invited Address: *On the Complexity of Context-Free Languages*, *Formal Language Theory Symposium*, Otzenhausen, Germany (1979)

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On Deterministic Context-Free Languages, Multihead Automata, and the Power of an Auxiliary Pushdown Store, *Proc. 8th Annual ACM Theory of Computing (STOC) Symposium* (1976), pp. 141-148.

On Languages Log Tape Reducible to Context-Free Languages (with A. Arora), *Proc. 10th Annual Conf. on Information Science and Systems* (1976), Princeton University, pp. 27-32.

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On Multihead Finite Automata Languages, *Proc. 7th Annual Conf. on Information Science and Systems* (1973), Princeton University, pp. 273.

On Families of Languages Defined by Time-Bounded Random Access Machines (with A. Zalcberg), *Proc. 3rd International Conference on Mathematical Foundations of Computer Science* ('73 MFCS), pp. 333-338

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"The Grid Embedding Problem is NP-Complete even for Edge Length 2" (with P. Bertolazzi), Technical Report 1983, EE/CS Dept., Northwestern University.

"Some observations on hardest context-free languages" (with J. M. Autebert and L. Boasson), Electrical Engineering and Computer Science Dept., Northwestern U., Evanston, IL 60202 (1981)

RESUME SUMMARY

Name: Dr. Bhavani Thuraisingham
Work Address I: Department of Computer Science, University of Texas at Dallas, Richardson, Texas
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I. EDUCATION

Ph.D. in Theory of Computation and Computability Theory;
 University of Wales, Swansea, United Kingdom, July 1979 (at age 24);
 Thesis: Decision Problems for System Functions
 Advisors: Dr. Roger Hindley (Swansea), Dr. John Cleave (Bristol) – received most of the supervision at University of Bristol and submitted thesis at University of Wales, Swansea due to residency requirements

M.S. in Computer Science, University of Minnesota, March 1984
 (G.P.A. 4.0/4.0; Specialized in: Databases, Networks, Operating Systems;
 Dissertation: Transport Layer for a Token Ring Network, Advisor: Dr. William Munroe)
M.Sc. in Mathematical Logic and Foundations of Computer Science;
 University of Bristol, United Kingdom, January 1977;
 Thesis: Construction of a Universal Partial Recursive Functional (Advisor: Dr. John Cleave)

B.Sc. in Pure Mathematics, Applied Mathematics, and Physics
 University of Ceylon, August 1975 (First Class and First in order of merit)

Higher Doctorate: D.Sc. Preparing published work to be submitted to the degree of D.Sc (Doctor of Science) at the University of Bristol in England, 2007. D.Sc. is beyond Ph.D. (usually known as Higher Doctorate) and awarded by British Universities to Alumni who have made outstanding research contributions in their field. University of Bristol is consistently rated among the top 5 universities in the U.K.

Professional Education:

- Management Development Program – 7 month course offered through the MITRE Institute, Apr. '97
- Other professional development courses through Control Data Institute '84, and AFCEA '94.
- Certification in Java Programming, at Learning Tree International (Sept '98-July 00)
- Program Director Training, National Science Foundation, March 2002
- Executive leadership course, UTD Management School, 2006
- Professional development: Readings on Inside Terrorism and Combating Terrorism

II. MAJOR ACCOMPLISHMENTS:

Major Accomplishments:

Professor and Director at the University of TX at Dallas. * President of Bhavani Security Consulting * 3 years of NSF experience * 22+ years work experience in Industry and at the MITRE Corporation, * Technical, management, and business development experience, * Over 8 years of visiting/adjunct university

academic experience, * Over 10 years of teaching experience for professional organizations * Author of 7 books in data management, data mining and security, over 200 conference papers and over 70 journal articles
 * Editor of over 10 books in data management, data security, and object technology * Over 150 presentations including 25 featured/keynote talks at conferences worldwide, * Inventor of 3 Patents, * Research, prototype, technology transfer, and product development experience, * Programming in Java for web

Major External Awards:

- o Recipient of IEEE Computer Society's 1997 Technical Achievement Award for contributions to Secure distributed database management.
- o Recipient of Career Communication Inc.'s National 2001 Woman of Color Technology Research Leadership Award
- o Featured by Silicon India's May 2002 issue as one of the top 7 technology innovators in USA of South Asian origin
- o Recipient of IEEE's 2003 Fellow Award for Contributions to Secure Systems involving databases, distributed systems and the web.
- o Recipient of AAAS (American Association for the Advancement of Science) 2003 Fellow Award
- o Recipient of British Computer Society (BCS) 2005 Fellow Award
- o Best paper award, IEEE Conference on Systems Sciences, 1988

III. WORK EXPERIENCE (Please see Sections 4, 5, 6 for details)

The University of Texas at Dallas (October 2004 – Present)

Starting October 2004, I have joined the University of Texas at Dallas as Full Professor of Computer Science (with tenure) and Director of the Cyber Security Research Center at the Erik Jonsson School of Engineering and Computer Science. I am supervising students in the area of secure semantic web, secure geospatial information systems, data mining for counter-terrorism, and privacy. I teach courses in data and applications security, trustworthy semantic webs, data management and biometrics.

Bhavani Security Consulting (June 2005 – Present)

Since June 2005 I founded my consulting company and am its president. Through this company I contract to the MITRE Corporation for Treasury work, teach courses for AFCEA, a non profit organization and also perform the role of Editor in Chief for Elsevier Science Publishers. Also consult for corporations such as Technology Futures Inc.

(iii) National Science Foundation, Arlington, Virginia (Oct. 1, 2001 – September 30, 2004)

IPA Position: Director of Cyber Trust, Data and Applications Security, Information and Data Management I was on IPA from the MITRE Corporation at NSF for 3 years and managed programs in Information Management, Sensor Networks, Data and Applications Security and Cyber Trust. Details are given in Section 4.

(iv) The MITRE Corporation, Bedford, MA (Jan '89 – June 2005)

Technical Positions:

- * Information Technology Consultant (October 2001 – June 2005)
- * Chief Scientist/Engineer in Data Management, Information Technology Directorate (May '99 – September 2001)
- * Senior Principal Scientist/Engineer, Advanced Information Systems Center (Sept. '96 – May '99)
- * Principal Scientist/Engineer, Advanced Information Systems Center (Mar. '95 – 8 Sept. '96)

* Lead Scientist/Engineer, Network and Distributed Systems Center (Aug '92 - 5 Mar. '95), Information Security Center (Jan '89 - Aug '92)

Management Positions

* Section Leader (June '95 - Oct '96) and Department Head (Oct '96 - May '99) in Data and Information Management, Advanced Information Systems Center and Information Technology Division (approx. 28 staff in May 1999 - started with approx. 10 staff in June 1995).

Leadership, Coordination Positions:

- * Head, MITRE's Corporate Research and Development Initiative in Evolvable Interoperable Information Systems (March '96 - September '97, budget approx: \$4M);
- * Head, MITRE's Corporate Research and Development Initiative in Data Management (Sept '94 - March '96, budget approx. \$1M);
- * Co-Director, MITRE Database Specialty Group (Oct '93-Dec '95).

My 16+ years experience at MITRE has given me the opportunity to work on research, development and technology transfer work. I have been working for a number of sponsors including the Air Force, Navy, Army, NSA, CIA and IKS. I have worked with not only researchers and defense contractors, but also with Fortune 500 corporations in information technology. I have managed a department of about 30 staff for 4 years and also managed the evolvable systems initiative and the massive data and applications initiative at MITRE and provided leadership in data management and data mining. A summary of my technical, leadership and management accomplishments is given under industry experience section.

(v) Honeywell Inc. Golden Valley, MN (Jan. '86 - Jan. '89)

Position: Principal Research Scientist / Engineer, Corporate Systems Development Division

I have conducted research, development, and technology transfer activities in database security, data management, distributed processing, information systems, process control systems, payoff modeling, and AI applications. In addition to reports and proprietary documents, papers were also published in refereed journals and conferences. Work was carried out for Honeywell internal divisions as well as for the Air Force and NASA. Details are given under Industry experience section.

(vi) Control Data Corporation, Arden Hills, MN (Dec '83 - Jan '86)

Position: Senior Programmer/Analyst, Arden Hills programming Division

I was involved in the design and development of the CDCNET (Control Data Communications Network) product. Company proprietary documents were also written. Specifically I was responsible for several components and details are given under the Industry Experience section.

IV. TEACHING (Section 5)

Academic/Teaching Experience (1980 - Present)

Since October 2004 I am full tenured professor of computer science at the University of Texas at Dallas. My prior academic experience includes the following: Between 1980 and 1988, over six years of academic experience, including visiting faculty member first at the Department of Computer Science, New Mexico Institute of Mining and Technology, and then at the Department of Mathematics, University of Minnesota ('80 - '83), and adjunct professor and member of the graduate faculty, Department of Computer Science, University of Minnesota ('84 - '88). I taught undergraduate and graduate courses in various topics including theory of computation and principles of programming languages. Also gave graduate seminars in secure database systems. Supervised M.S. and Ph.D. students and collaborated on research projects. During academic years 2000 and 2001, I taught an advanced data management and data mining course at Boston

University (Metropolitan College) as adjunct professor of computer science. While at MITRE, I have co-supervised students at North Eastern, Coriell, CMU, and University of Rhode Island, and students at the University of Milano. After I finished my PhD in UK until I moved to the US, I taught Math for High School Students.

Professional Teaching (1990 - present)

Between 1990 and 2000 I have been an instructor at the MITRE Institute giving tutorials in data management to MITRE staff as well as sponsors (in Bedford, DC, Fort Monmouth, San Antonio, San Diego, Colorado Springs, and Stuttgart). Topics include database security, database systems evolution and interoperation, heterogeneous database integration, distributed databases, object databases, real-time databases, data warehousing and mining. Since September 1998, I am an instructor for AFCEA Educational Foundation teaching a course on "data management, information management and knowledge management" and another course on "data mining and its applications to counter-terrorism." I also prepared lecture notes for Harcourt higher education for IT2555 for a web course in data mining.

V. RESEARCH (Sections 6 - 12)

Main Specialty Areas:

Information Security (data security, web security, information assurance), Data Management and Data Mining (interoperability, geospatial data, web mining), Knowledge Management and Semantic Web.

Recent Focus:

At the University of Texas at Dallas, my focus is on Assured Information Sharing, Secure Geospatial Data Management and Surveillance/Biometrics. While working at NSF my focus was on Cyber Security, Privacy, Data Mining for Counter-terrorism: Several keynote and featured presentations on this topic at the White House Office of Science and Technology Policy, The United Nations, Cambridge University, Stanford University (panel at Stanford Database Workshop), Oxford University (COMPSAC Luncheon address), National Academy of Sciences, SIAM Data Mining Conference, IEEE ICTAI Conference, American Association of Colleges and Universities, among others.

Research Statement:

My early research was on theory of computation and in particular recursion theory. This research was carried out as visiting professor at the New Mexico Institute of Technology and at the University of Minnesota for 3 years. It resulted in several journal publications including in the Journal of Computer and Systems Sciences. Since 1985 my research has focused on secure database systems and later on real-time objects. This research was carried out initially at Honeywell Inc as well as at the University of Minnesota as adjunct professor of computer science for over 4 years. I continued with this research at the MITRE Corporation since 1989. Significant contributions include Design and development of Lock Data Views Relational Database System, Design and development of secure distributed database system, Design and development of techniques to handle the Inference problem, Design of NTML: a No monotonic Logic for Secure Data and Knowledge Based Systems, Design and development of secure multimedia and object systems, and the Design and development of an object-based real-time data manager and middleware for next generation real-time command and control systems. I also used my background in theory and proved that the inference problem was unsolvable. This work has been quoted by Dr. John Campbell of NSA as the significant development in database security in 1990. My research in the early 2000 was on secure semantic web, privacy constraint processing and secure sensor information management. My main research now is focusing in three major areas: Assured Information Sharing, Secure Geospatial Data Management; Surveillance/Identity Assurance, My research in secure database systems was transferred to Army's Maneuver Control System. My research in distributed real-time object systems was transferred to the AWACS program. My research at Honeywell, University of Minnesota and MITRE has resulted in several publications including in IEEE Transactions of Knowledge and Data Engineering, IEEE Transactions of Software Engineering, IEEE Transactions of Parallel and Distributed Systems, IEEE Computer, IEEE Network, ACM COPSLA, IEEE Data Engineering, and VLDB Conferences. My work on secure databases has resulted in 3 US patents.

Research Contracts/Grauts

At MITRE I initiated and lead several research projects for various sponsors including Navy (secure distributed databases, secure objects, inference problem/NTML), Army (inference problem, security constraint processing), Air Force (secure distributed databases and real-time databases/middleware), and National Security Agency (secure federated databases, designing secure systems and applications). Each project that I led consisted of about 3 - 5 staff, a third with PhDs and half with MS degrees; also included students from CMU, Cornell, University of Rhode Island and North Eastern University. I was also a mentor to 2 junior research staff at NSA for 2 years (at the request of the chief, R23) and conducted joint research on designing secure applications and semantic data models for secure databases. I currently have grants from the Air Force, Raytheon, NSF and from the Texas Enterprise Funds at the University of Texas at Dallas.

Research Management:

At the University of Texas at Dallas I am supervising many PhD and MS students. Prior to that, as department head at MITRE, I managed around 28 staff for 4 years (1995-1999). About a third had PhDs and half with Masters degrees. Research in my department focused in four areas: Multimedia data management, Data Mining, Interoperable databases and Distributed objects, while security cuts across all areas. We also supported operational systems in distributed databases. Total budget for department was approx \$5M/yr. I also managed MITRE's internal research in information management for 3 years. Total budget for the initiative was approx \$4M/yr. I managed fifteen academic research projects for CIA for 6 years. Total budget was approx. 3m/yr. While a department manager I started writing books for technical managers on data management and data mining and have completed 6 books. Between 1999 and 2001 I was chief scientist/engineer in data management and was responsible for the research as well as providing research directions for about 200 staff at MITRE's Air Force Center. At UTD I am mentoring 2 associate professors and 3 assistant professors and we work as a team.

Patents:

First U.S. Patent issued on security constraint processing in database systems (Date of issuance: October 11, 1994 - this patent has most number of citations currently for a MITRE patent). Second US Patent issued on secure deductive data management (Date of issuance: January 2, 1996); Third U.S. Patent on knowledge-based database inference control (date of issuance December 2, 1997). Note: During March 2004, a prominent venture capital company from the West Coast has purchased the rights to some of MITRE patents for a substantial amount. This company mainly wanted 4 MITRE patents to put to use immediately; 3 of the four are mine. Working on applying for patents at the University of Texas at Dallas on secure data management.

Publications:

Published (or accepted) over 300 technical papers and reports including over 70 journal articles in information security, data/knowledge base systems, distributed processing, object technology, AI applications, real-time systems, and computability theory. Journals include IEEE Computer, IEEE Transactions on Software Engineering, IEEE Transactions on Knowledge and Data Engineering, IEEE Network, IEEE Transactions on Parallel and Distributed Systems, Data and Knowledge Engineering, Journal of Object-Oriented Programming, Journal of Systems and Software, Computers and Security, Information and Management, Computer Standards and Interface, Journal of Computer and Systems Sciences, Notre Dame Journal of Formal Logic, AI-Expert, Tools in Artificial Intelligence, Information Systems Management, Information and Software Technology, Real-time Systems, SIGNAL, IEEE ITPro. Presented papers at several conferences and invited workshops including ACM OOPSLA, IEEE Data Engineering, VLDB, IEEE ISORC, IEEE ISADS. In addition over 150 professional presentations including 30 keynote presentations.

Books Authored:

• Data Management Systems Evolution and Interoperation, published May 1997, CRC Press • Data Mining: Technologies, Techniques, Tools and Trends, CRC Press, December 1998 • Web Data Management and Electronic Commerce, CRC Press, June 2000 • Managing and Mining Multimedia Databases for the

Electronic Enterprise, CRC Press, June 2001. • XML, Databases and the Semantic Web, CRC Press March 2002 • Web Data Mining Technologies and Their Applications in Business Intelligence and Counter-Terrorism, CRC Press, June 2003 • Database and Applications Security: Integrating Data Management and Information Security for CRC May 2005 • Building Trustworthy Semantic Webs, Contract signed May 2005, Publications 2007 • Data Mining Applications (Contract signed with CRC Press, May 2006, Publications 2007, co-authors: L. Khan and M. Awad)

Books and Special Issues Edited:

• Over Ten Books: Database Security for North Holland (co-editor, '93), Object-Oriented Systems Security for Springer (co-editor, '94), Multimedia Database Management for Kluwer (co-editor, '96), Multimedia Directions for Kluwer (co-editor '97) Data Management Handbook Supplement for Auerbach (guest editor, '96); Data Management Handbook (consulting editor, '97), Knowledge Management for MIT Press (co-editor, '00) • Database Security for Kluwer (co-editor, '01), Heterogeneous Information Exchange for Kluwer (coeditor '02); Web Information Security for Artech House (coeditor '05) • Data Integrity (coeditor '05); Special issues for IEEE Transactions on Knowledge and Data Engineering ('96), Computer Standards and Interfaces ('95), Multimedia Tools and Applications ('97) (also available as book by Kluwer '97), IEEE Multimedia ('97), Data and Knowledge Engineering ('02) and Journal of Computer Security ('03); Journal of Intelligent Information Systems ('04); VLDB Journal (co-editor '06), Journal of Information Security (co-editor '07)

Prototypes and Products:

Developed parts of the CDCNET product at Control Data Corporation (extensive implementation in C/C++ language). Implementations while taking computer science classes (mostly Pascal). Supervised the implementation of expert process control system XIMKON at Honeywell as well as Network operating system and students' implementations at University of Minnesota (mostly C). Supervised very closely the implementation of several prototypes based on my designs at MITRE. These include secure distributed database system prototype for query and update and simulation for query and concurrency control, database and distributed database inference controller prototypes for query, update, and database design, Multimedia system prototypes simulating security features, Active real-time data management prototype, and real-time data management hosted on an infrastructure for real-time applications (mostly C and C++). Many of these prototypes use commercial database system products. At the University of Texas at Dallas, my students are implementing several prototypes in data mining systems, semantic webs and social networks. I have kept up with the implementation on my own time, implemented small programs in C++ in mid-90s and my main interest currently is in Java and am continuing to be proficient in writing Java programs and obtained my certification in Java programming at Learning Tree International in July 2000.

Presentations:

Presentations are worldwide including in USA, UK, Canada, Germany, France, Italy, Switzerland, Austria, Sweden, Finland, Norway, Netherlands, Ireland, Spain, Belgium, Greece, India, Singapore, Hong Kong, Japan, Australia, Taiwan, New Zealand, and South Africa. Invited lectures and seminars at Universities around the world including University of Cambridge, University of Oxford (COMPSAC Luncheon address) in England, MIT (IEEE presentation), and Stanford (Stanford Database Workshop panel).

External Tutorials:

One to three day tutorials to numerous MITRE sponsors (1990 - 2000), External tutorials in Database Security, Object Databases, Data Mining, Web Databases and Electronic Commerce (Computer Security Conference 1987, IEEE COMPSAC 1989, IEEE Dual Technology Conference 1994, ACM SAC Conference 1998, IEEE COMPSAC 1998, IEEE ISADS 1999, IEEE COMPSAC 1999, IEEE ANNIE 1999.

Educational Activities:

I have worked to promote Math and Science among high school students (e.g. talks at UTD), women (SWE, WITT) and disadvantaged minorities (Career Communications). At NSF I was actively involved in the Math Science Education Partnerships between universities and high schools. Currently I am a member of the K-6, 7-12 curriculum development committees for USGIF (US Geospatial Intelligent Foundation).

VI. PROFESSIONAL ACTIVITIES (Section 13)

Major Advisory Boards:

Research Advisory Board for OGC (Open Geospatial Consortium Interoperability Institute), 2006-present, Advisory Board, Department of Computer Science, Purdue University 2005-6.

Conference and Journal Boards:

IEEE Distinguished Lecturer 2002-2005; Chair IEEE Kanai Award 2002-2006; Editor in Chief, Computer Standards and Interface Journal, 2005 – present; Editorial board member IEEE Transactions on Knowledge and Data Engineering ('96 - '00) the Journal of Computer Security ('90 - '00), Computer Standards and Interface Journal ('93 – present), ACM Transactions on Information Systems Security ('04-present), IEEE Transactions on Secure Dependable Computing ('04-present); Program Chair (for IFIP Database Security 1992 and 2000, IEEE Metadate 1996, IEEE WORDS 1999, IEEE ISADS 2001, Program Co-Chair ACM Multimedia Database 1994-5, IEEE Multimedia Database 1995-6, 1998, ACM OOPSLA Object Security '93, ACM OOPSLA Object Medical Information Systems 1994-6, IEEE KDEX 1998, AFCEA Data Mining 1997, IEEE COMPSAC 1998, IEEE ISORC 2000, IEEE COMPSAC Workshop on Web Security 2002, and Program Committee Member for several Conferences/Workshops; Panel member National Science Foundation, National Academy of Sciences, Air Force Scientific Advisory Board, Department of Health and Human Services, and the White House Office of Science and Technology Policy; Reviewer government agencies, Books, Journals and Conferences; Panel member and chair for several conferences; Invited papers; Tutorials; Editor of special issues; Member IEEE Board for Conference and Tutorials 1997, Chair of search committees for IEEE Transactions 1998; Advisory Board IASTED ('01-present).

Major Company Awards:

Significant awards: MITRE Corporation's Program Achievement Award for Evolvable Real-time Systems (June 1997), MITRE Director's Distinguished Accomplishment Award for Data Mining (August 1997), MITRE Director's Distinguished Accomplishment Award for Distributed Object Management (December 1997), MITRE's Program Achievement award for Research Credit for Treasury, June 2002, June 2005.

Other Company Awards:

MITRE: Author of the month award (for July 1997 and April 1999 for two of my books published), Hoeywell Inc. monthly excellence award for April 1987, Control Data Corporation's Award for completing certain number of error fixes to make product delivery deadline (September 1985).

Program Management Awards from NSF

Award for Information Technology Research Management FY02, Math and Science Partnership Program Competition FY02; Cyber Trust FY04.

Other Awards:

Best Paper Award for Software Track at the 1988 IEEE International Conference on Systems Sciences, Hawaii, January 1988. Subsequently invited to submit the paper to IEEE Computer and paper published in March 1989 issue.

Professional Association Membership:

IEEE ('97 – present, initially senior member, currently Fellow); Member of ACM ('81 - present); IEEE Computer Society ('86 - present); British Computer Society ('91 - present); AFCEA ('95 - present); American Association for Advancement of Science ('02 – present); IASTED ('02 – present); Institute of Mathematics and its Applications ('77 - '81); Association for Symbolic Logic ('81 - '84, '91-'93 via MITRE); AAAS ('02 – present, currently Fellow); IFIP 11.3 Working Group ('90 - present); OMG Real-time and C4I SIGs ('96 – '99; Founder of C4I SIG and instrumental in founding the real-time SIG)

Company Activities:

Organized conferences at MITRE: 1st Applied Database Conference, August 1994, Second Applied Database Conference, December 1995, 1st Object Technology Conference, June 1996, several tutorials in various aspects of data management at the MITRE Institute (1990 - present).

University Committees:

Faculty Search Committee 2005, 2006; Search Committee for Vice president for Business 2005, Dean of Natural Sciences 2006, Research Advisory Committee 2005-2007, Academic Advisory Committee, 2005 – 2007. Tenure committee chair 2005-6; Promotion committee chair 2006-7.

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1 Areas of Research Interests

Mobile ad hoc Networks, Cognitive Radio Networks, Wireless Sensor Networks, Mobile Computing, Distributed Systems, Reliability and Fault Tolerance, Telecommunication/Computer Networks.
In the networking area, my interests span all areas except physical layer of the protocol stack.
I have been a consultant for a number of high tech companies.

2 Education

Degree	Institution and thesis information	Years
Ph.D.	Computer Science, University of Pittsburgh, Pittsburgh, PA Thesis advisor : K.V.S. Ramarao Thesis Title : Design of fault-tolerant protocols for distributed processing systems	1985-1988
M.S.	Computer Science, University of Pittsburgh, Pittsburgh, PA Project advisor : Errol L. Lloyd Project Title : Convex polygon cover problem	1983-1985
M.Tech.	Computer Science, Indian Institute of Technology, Madras, India	1981-1983
B.Tech.	Civil Engineering, Indian Institute of Technology, Madras, India	1976-1981

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3 Employment

6/05	Visiting Faculty, Soochow University, Soochow, China
6/04 - 5/05	Summer Faculty Researcher and Consultant, Rockwell Collins, Inc. Richardson, TX.
6/04 - 7/04	Member of Advisory Board, Jali Networks (Acquired by Cisco Systems in 12/04)
1/04 - 12/06	Head, Telecom Engineering Program, UTD.
9/00 - 6/01	Technical Leader, Cisco Systems, Richardson, TX.
6/00 - 8/00	Chief Architect, IPmobile, Inc., Richardson, TX.
9/95 - present	Associate Professor, Computer Science Program, The University of Texas at Dallas, Richardson, TX 75083. {Was on leave of absence during Fall 98 and Spring/Summer 99.}
1/89 - 8/95	Assistant Professor, Computer Science Program, The University of Texas at Dallas, Richardson, TX 75083.
5/85 - 12/88	Teaching Fellow, Department of Computer Science, University of Pittsburgh, Pittsburgh, PA 15260.
9/83 - 4/85	Teaching Assistant, Department of Computer Science, University of Pittsburgh, Pittsburgh, PA 15260.
5/82 - 8/82	Software Engineer Trainee, Information Technology Division, Wipro Products Limited, Bangalore 560 084, India.
7/80 - 12/80	Teaching Assistant, Department of Computer Science, Indian Institute of Technology, Madras 600 036, India. Consultant for numerous high-tech companies and intellectual law firms.

4 Achievements in original investigation

4.1 Articles in refereed journals

1. "M. Patel, R. Chandrasekaran, and S. Venkatesan, Improved quasi path restoration in mesh networks," *IEEE/ACM Transaction on Networks* (to appear).
2. "Efficient Minimum-Cost Bandwidth-Constrained Routing in Wireless Sensor Networks" (with M. Patel and R. Chandrasekaran), Special Issue on "Wireless Networks and Pervasive Computing," *Journal of Pervasive Computing and Communications (JPCC)*, 2006, Vol 2, No. 2.
3. "Low-Intrusive Consistent Disk Checkpointing: A tool for Digital Forensics (with S. Sitaraman)," *Journal of Universal Computer Science*, Volume 11, Number 1, 2005, pp 20-37.
4. "A Feedback Based Scheme For Improving TCP Performance In Ad-Hoc Wireless Networks"

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(with K. Chandran, S. Raghunathan and R. Prakash), *IEEE Communications Magazine*, Volume 8, Number 1 (February 2001), pp 34–39.

5. "Techniques to Tackle State Explosion in Global Predicate" (with S. Alagar) *IEEE Transactions on Software Engineering*, Volume 27, Number 8 (August 2001), pp 704–714.

6. "Spare Capacity Assignment in Telecom Networks using Path Restoration and Further Improvement using Traffic Splitting" (with J. Veerasamy and J. Shah), *Journal of Systems and Software*, Vol 47 (1999), pp 27–33.

7. "Causal ordering in distributed mobile systems" (with S. Alagar), *IEEE Transactions on Computers*, Volume 46, Number 3, March 1997, pp 353–361.

8. "Optimistic crash recovery without changing application messages" (with T. Juang and S. Alagar), *IEEE Transactions on Parallel and Distributed Systems*, Volume 8, Number 3, March 1997, pp. 263–271.

9. "Testing and debugging distributed programs using global predicates" (with B. Dathan), *IEEE Transactions on Software Engineering*, Volume 21, Number 2, February 1995, pp. 163–177.

10. "Making fault-sensitive algorithms tolerate link failures" (with K. Ramarao), *Journal of Parallel and Distributed Computing*, Vol 30, No. 1, Oct 1995, pp 64–75.

11. "Efficient algorithms for optimistic crash recovery" (with T. Juang), *Distributed Computing*, Vol. 8, 1994, pp 105–114.

12. "Computing associative functions distributively in spite of link failures" (with K. Ramarao), *Journal of Parallel and Distributed Computing*, Vol. 23, No. 3, 1994, pp 399–410.

13. "Optimistic crash recovery without rolling back non-faulty processors" (with T. Juang), *Information Sciences*, Vol. 78, 1994, pp 49–68.

14. "An optimal algorithm for recording snapshots using causal message delivery" (with S. Alagar), *Information Processing Letters*, Vol. 50, 1994, pp 311–316.

15. "Time and message optimal crash recovery in tree networks" (with T. Juang), *Journal of Information Science and Engineering*, Vol. 9, pp 103–122, 1993.

16. "Two lower bounds on distributed shortest paths" (with K. Ramarao), *Information Processing Letters*, Vol. 48, pp 145–149, 1993.

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17. "Message-optimal incremental snapshots," *Journal of Computer and Software Engineering*, Vol. 1, No. 3, pp 211–231, 1993.

18. "On finding and updating shortest paths distributively" (with K. Ramarao), *Journal of Algorithms*, Vol. 13, No. 2, June 1992, pp 235–257.

19. "A Message optimal algorithm for distributed termination detection" (with S. Chandrasekaran), *Journal of Parallel and Distributed Computing*, Vol. 8, pp 245–252, 1990.

20. "Reliable protocols for distributed termination detection," *IEEE Transactions on Reliability*, Vol. 38, No. 1, April 1989, pp 103–110.

4.2 Articles under review

1. "MinMax: An Energy-Efficient Routing Scheme for Sensor Networks with Multiple Mobile Base Stations," (with S. Gandham, R. Prakash and M. Dawande), *Operations Research*.

2. "A QoS aware MAC layer protocol for wireless LANs" (with N. Choi and R. Prakash).

3. "Message-Optimal and latency-optimal termination algorithms for arbitrary topologies" (with Neeraj Mittal and S. Peri), revised version submitted to *Distributed Computing*.

4. , Neeraj Mittal, Felix C. Freiling, S. Venkatesan and Lucia Penso, "On Termination Detection in Asynchronous Distributed Systems with Failure Detectors, Submitted to *Distributed Computing*.

5. "Skeletal node rules for connected dominating set in ad hoc networks (with C. David Young)," U.S.Patent application filed August 2005.

4.3 Articles in refereed conferences

1. An Efficient Handover Scheme Based on Fast Mobile IPv6, Shanthi Menezes, Kwang-Iyun Ro, and S. Venkatesan, *IEEE Vehicular Technology Conference*, Fall 2006. Poster session.

2. Noun Choi, Maulin Patel, and S. Venkatesan, "A Full Duplex Multi-channel MAC Protocol for Multi-hop Cognitive Radio Networks," *Proc. International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CROWNCOM 2006)*, Jun 2006, Mykonos, Greece.

3. Noun Choi and S. Venkatesan, "Eliminating Location Dependent Unfairness in WLANs," *Proc. Vehicular Technology Conference (2006 Fall)*, Sep 2006, Montreal, Canada.

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4. Ilai Vu, Neeraj Mittal, S. Venkatesan. THIS: Threshold security of Information Aggregation for Sensor networks. In IEEE 4th International Conference on Information Technology : New Generation (ITNG), Las Vegas, Nevada, 2007, to appear.
5. M. Thoppian, Ilai Vu, S. Venkatesan, R. Prakash, N. Mittal, J. Anderson. Improving Performance of Parallel Simulation Kernel for Wireless Network Simulations. In IEEE Milcom 2006, Washington DC, Oct 2006, pp 1-6.
6. Ilai Vu, Mansi Thoppian, Alizea Mehdian, S. Venkatesan, Ravi Prakash, Jackson Anderson. Real-time Simulations of Mobile Ad-hoc Network (MANET) in OPNET Modeler. In OPNETWORK 2006, Washington DC, Aug 2006.
7. S. Krishnamurthy, R. Chandrasekaran, Neeraj Mittal, S. Venkatesan. Brief Announcement: Synchronous Distributed Algorithms for Node Discovery and Configuration in Multi-channel Cognitive Radio Networks. Proceedings of DISC 2006, 572-574.
8. MAC-layer Scheduling in Cognitive Radio based Multi-hop Wireless Networks M. Thoppian, S. Venkatesan, Ravi Prakash, R. Chandrasekaran, Proceedings of the 2006 International Symposium on World of Wireless, Mobile and Multimedia Networks, June 2006, Niagara Falls, NY., 191202.
9. N. Choi, M. Patel, and S. Venkatesan, "A Full Duplex Multi-Channel MAC Protocol for Multi-hop Cognitive Radio Networks," Proceedings of International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CROWNCOM 2006), 2006, Mykonos, Greece.
10. M. Thoppian, S. Venkatesan, R. Chandrasekaran and R. Prakash, "MAC-layer Scheduling in Cognitive Radio based Multi-hop Wireless Networks," Proceedings of the IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks, Buffalo, NY, June 2006.
11. S. Venkatesan, M. Patel and S. Venkatesan, "A Distributed Algorithm for Path Restoration in Circuit Switched Communication Networks," Proceedings of 24th IEEE Symposium on Reliable Distributed Systems (SRDS 2005), Orlando, FL, October 2005, pp 226-231.
12. N. Mittal, F. Freiling, S. Venkatesan and L. Pensa, "Efficient Reduction for Wait-Free Termination Detection in a Crash-Prone Distributed System," Proceedings 18th International Conference on Distributed Computing (DISC 2005), Cracow, Poland, September 2005, to appear.

13. S. Kuppa, S. Krishnamurthy, M. Thoppian, S. Venkatesan, R. Chandrasekaran, R. Prakash and N. Mittal, "Time-efficient Layer-2 Auto-configuration for Cognitive Radios," Proceedings of IASTED Conference on Parallel and Distributed Computing and Systems (PDCS 2005), Phoenix, AZ, November 2005, pp 459-464.
14. S. Venkatesan and C.D. Young, "A Distributed Topology Control Algorithm for MANETs," Proceedings of MILCOM 2005, Atlantic City, NJ, October 2005.
15. S. Krishnamurthy, M. Thoppian, S. Venkatesan and R. Prakash, "Control Channel based MAC-Layer Configuration, Routing and Situation Awareness for Cognitive Radio Networks," Proceedings of MILCOM 2005, Atlantic City, NJ, October 2005.
16. R. Thurinella, S. Sitaraman and S. Venkatesan "Origins: An Approach to Trace Fast Spreading Worms to Their Roots," South Central Information Security Symposium, April 2005, Austin, TX.
17. S. Sitaraman and S. Venkatesan, "Forensic Analysis of File System Intrusions using Improved Backtracking," Proceedings of 3rd IEEE International Workshop on Information Assurance, March 2005, College Park, MD, pp 154-163.
18. S. Sitaraman, S. Krishnamurthy and S. Venkatesan "Byteprints: A tool to gather Digital Evidence," Proceedings of IEEE International Conference on Information Technology: Coding and Computing, Las Vegas, NV, April 2005.
19. M. Patel, R. Chandrasekaran, and S. Venkatesan, "Energy Efficient Sensor, Relay and Base Station Placements for Coverage, Connectivity and Routing," Proceedings of 24th IEEE International Performance, Computing and Communications Conference, Phoenix, AZ, April 2005.
20. Y. Iyer, S. Gandham, and S. Venkatesan, "A generic Transport Layer Protocol for Sensor Networks," Proceedings of 14th IEEE International Conference on Computer Communications and Networks, October 2005, San Diego, CA, to appear.
21. "Message-Optimal and latency-optimal termination algorithms for arbitrary topologies" (with Neeraj Mittal and S. Peri), Proceedings 18th International Conference on Distributed Computing (DISC 2004), Amsterdam, pp 290-304.
22. "A Dynamic Approach to Test Programs for Binding Based Race Condition Vulnerabilities" (with B. Goyal and N. Mittal), Proceedings of South Central Information Security Symposium, April 2004.

23. "Efficient Minimum-Cost Bandwidth-Constrained Routing in Wireless Sensor Networks" (with M. Patel, S. Chandrasekaran, Proceedings of International Conference on Wireless Networks, June 2004).
24. "A QoS aware MAC layer protocol for wireless LANs" (with N. Choi and R. Prakash), Proceedings of Workshop on Multihop Wireless Networks (MWN), Phoenix, AZ, April 2004.
25. S. Sitaraman and S. Venkatesan, "Low-intrusive Consistent Disk Checkpointing: A Tool for Digital Forensics", Proceedings of International Conference on Information Technology (ITCC 2004), Las Vegas, Nevada, April 2004.
26. H. Wang and S. Venkatesan, "Adaptive Video Transmission over a Single Wireless Link," Proceedings of Tenth International Conference on Distributed Multimedia System, San Francisco, CA, September 2004, pp 116-121.
27. H. Wang, A. Farago and S. Venkatesan, "A System for Video Streaming Over Erroneous Multi-hop Wireless Networks" Proceedings of WNCG Wireless Networking Symposium, Austin, TX, October 2004.
28. "A Highly Efficient Spare Capacity Planning for Generalized Link Restoration" (with S. Krishnamurthy, M. Dawande and R. Chandrasekaran), Proceedings of 12th International Conference on Computer Communications and Networks, 2003, IEEE, pp 47-52.
29. "A Comparative Study of Restoration Schemes and Spare Capacity Assignments in Mesh Networks" (with M. Patel and R. Chandrasekaran), Proceedings of 12th International Conference on Computer Communications and Networks, 2003, IEEE, pp 399-404 (Nominated for the best paper award).
30. "Mobile Tracking and Resource Reservation Scheme for Cellular Networks" (with S. Shenbagaraman and B. Prabhakaran), IEEE Vehicular Technology Conference, 2003.
31. "Energy Efficient Schemes for Wireless Sensor Networks with Multiple Mobile Base Stations" (with S. Gandham, R. Prakash and M. Dawande), IEEE Global Communications Conference, 2003, pp 377-381.
32. "Cluster-based control mechanism for communication networks" (with S. Kuppa, S. Mrishnamurthy and M. Thoppian), Brief announcement, Proceedings of ACM International Conference on Principles of Distributed Computing, 2003.
33. "A Unified Approach to Detecting Binding Based Race Condition Attacks" (with B. Goyal and S. Sitaraman), Proceedings of International Workshop on Cryptology and Network Security (CANS03), 2003.

34. "A Partial Order Approach to Detect Race Condition Attacks" (with Bharat Goyal, Sritarajani Sitaraman, Neeraj Mittal), Proceedings of Southcentral Information Security Symposium, Denton, TX, April 2003.
35. "Techniques to Tackle Vulnerabilities Caused By Lack of Mutual Exclusion" (with Bharat Goyal, Neeraj Mittal, and Sritarajani Sitaraman), Proceedings of Texas Workshop on Security of Information Systems, College Station, TX, April 2003, pp 17-21.
36. "Mobile tracking using forward link in cellular networks" (with S. Shenbagaraman and B. Prabhakaran), Proceedings of IEEE Emerging Telecommunications Technologies Symposium, Richardson, September 2002.
37. "An adaptive channel allocation algorithm in multi-carrier CDMA networks," (with M. Alam and S. Sitaraman) Proceedings of IEEE Vehicular Technology Conference, Birmingham, AL, May 2002.
38. "Gateway routing: A cluster based mechanism for recovery from mobile host partitioning in cellular networks," (with Sridharan Raghunathan and Ravi Prakash), Proceedings of Application Specific System and Software Engineering Technology, March 2000.
39. "Optimal quasi-path restoration in telecom backbone networks" (with Vilas Jain, Salman Baig, and Sridhar Alagar), Proceedings of Thirteenth International Conference on Systems Engineering, August 1999, pp CS-175-CS-180.
40. "Dynamic sub-second restoration on WDM transport networks" (with R. Jagannathan, S. Alagar, M. Garnot, and F. Masetti), Proceedings of SPIE International Symposium on Voice, Video, and Data Communication, Boston, Nov 1998.
41. "Fault Tolerant Mobility Planning for Rapidly Deployable Wireless Networks" (with C. Shields, V. Jain, S. Ntafos and R. Prakash), Proceedings of 1998 Annual IEEE Workshop on Fault-Tolerant Parallel and Distributed Systems, Orlando, FL, April 1998.
42. "A Feedback Based Scheme For Improving TCP Performance In Ad-Hoc Wireless Networks" (with K. Chandran, S. Raghunathan and R. Prakash), Proceedings of International Conference on Distributed Computing Systems, Amsterdam, May 1998.
43. "Integrating Files and Processes: A Comprehensive Approach to Checkpointing" (with S. Alagar and R. Rajagopalan), Proceedings of Fifth International Conference on Advanced Computing, December 1997, pp 453-458.
44. "Tolerating mobile support station failures" (with S. Alagar and R. Rajagopalan), Proceedings of First Conference on Fault Tolerant Systems, Madras, India, January 1996, pp 225-231.

45. "Reliable broadcast in mobile wireless networks" (with S. Alagar and J. Cleveland), Proceedings of Military Communications Conference (MILCOM), San Diego, November 1995, pp 236-240.
46. "MCE: An integrated mobile computing environment and simulation testbed" (with J. Rajagopalan and S. Alagar), Proceedings of Second USENIX Symposium on Mobile and Location Independent Computing, Ann Arbor, MI, April 1995, pp 33-46.
47. "Spare Capacity Assignment in Telecom Networks using Path Restoration" (with J. Veerasamy and J. Shah), Proceedings of Third International Workshop on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems, Durham, NC, January 1995, pp. 370-374.
48. "Techniques to tackle state explosion in global predicate detection" (with S. Alagar), Proceedings of International Conference on Parallel and Distributed Systems, Taiwan, December 1994, pp 412-417.
49. "Causally ordered message delivery in mobile systems" (with S. Alagar), Proceedings of Workshop on Mobile Computing Systems and Applications, November 1995, pp. 169-174.
50. "Effect of traffic splitting on link and path restoration strategies," (with J. Veerasamy and J. Shah), Proceedings of Globecom, November 1994.
51. "Algorithm-based fault tolerance for non-computationally intensive applications" (with S. Nair), Proceedings of SPIE conference, San Diego, CA, July 1994.
52. "Hierarchy in testing distributed programs" (with S. Alagar), Proceedings of Workshop on Automated and Algorithmic Debugging, Sweden, May 1993.
53. "Time and message optimal crash recovery in tree networks" (with T. Juang), Proceedings of International Conference on Parallel and Distributed Systems, Taipei, Taiwan, December 1992, pp 259-266.
54. "Distributed problem solving in spite of processor failures" (with K. Ramamo), Proceedings of Eleventh Symposium on Reliable Distributed Systems, IEEE, October 1992, pp 164-171.
55. "Testing and debugging distributed programs using global predicates" (with K. Brahmadahan), Proc. 30th Annual Allerton Conference on Communication, Control and Computing, Urbana, IL, October 1992, pp 137-146.

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56. "Efficient crash recovery in sparse low diameter distributed systems" (with T. Juang), Proc. 29th Annual Allerton Conference on Communication, Control and Computing, Urbana, IL, October 1991.
57. "Crash recovery with low overhead," (with T. Juang), Proceedings of Eleventh International Conference on Distributed Computing Systems, Arlington, TX, May 1991, pp 454-461.
58. "Efficient algorithms for crash recovery in distributed systems" (with T. Juang), Proceedings of Tenth International Conference on Foundations of Software Technology and Theoretical Computer Science, Bangalore, India, December 1990.
59. "Ineffectiveness of synchronous communication," (with R. Condamoor), Proceedings of the 27th Annual Allerton Conference on Communication, Control and Computing, Urbana, IL, September 1989.
60. S. "Fault-tolerant synchronizers," Proceedings of the First Annual Symposium on Parallel and Distributed Processing, Dallas, TX, June 1989, pp 368-375.
61. "Message-optimal incremental snapshots," Proceedings of the Ninth International Conference on Distributed Computing Systems, Newport Beach, CA, June 1989, pp 53-60.
62. "On finding strongly connected components distributively" (with K. Brahmadahan), Proceedings of the 26th Annual Allerton Conference on Communication, Control and Computing, Urbana, IL, September, 1988, pp 683-692.
63. "On finding and updating shortest paths distributively" (with K. Ramarao), Proceedings of the 24th Annual Allerton Conference on Communication, Control and Computing, Urbana, IL, October 1986, pp 1079-1088.
64. "Convex polygon cover problem," (Abstract) Annual ACM Computer Science Conference, Cincinnati, OH, February 1986.

4.4 Patents

1. "Method and system for restoring a distributed telecommunications network" U.S. Patent # 5,999,286, issued on December 1999.
2. "Skeletal node rules for connected dominating set in ad hoc networks," U.S. Patent application filed August 2005.

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4.5 External funding for original investigation

1. "Development of sensor hardware and wireless network testbeds," \$20K, Information Warfare Directorate (Prime: Signal Technology), 10/16/06 4/2/07, PI: S. Venkatesan, Co-PI: Ravi Prakash.
2. "Network-Centric Operations and Warfare Modeling and Simulation Integration Center," \$200,000, September 1, 2005–August 31, 2007, PI: S. Venkatesan, Co-PIs: R. Prakash and N. Mittal.
3. "Research and Development of 3GE-WLAN Seamless Handover for 3GPP Evolution User Equipment," ETRI, Korea (\$100,000), September 2005–August 2006, PI: S. Venkatesan, Co-PI: R. Prakash.
4. "Development of sensor hardware and wireless network test beds," \$90,000 (\$78,000 in cash and \$12,000 in new equipment), SigTech, A Crane Company, Plano, TX, September 2005–December 2006 (with R. Prakash)
5. "Research in search technologies," \$17,000, Unrestricted Gift, Sabre Holdings.
6. "Environment Monitoring in Warehouses using Sensors and Sensor Networks," Crystal Technology & Industries, Inc., \$35,000, September 1 2005–August 31, 2007.
7. "Research and development in Mobile Ad hoc Networks," \$25,000, Unrestricted Gift, Rockwell Collins, Inc.
8. "Smart Transducers for Sensor Networks", Williams-Pyro (Prime) from National Institute of Science and Technology, \$14,289, December 2003–May 2004.
9. "Mobile Collaboration in Multi-Security Level Domains" (With Duncan MacFarlane), Department of NAVY (as a subcontract; prime is Asier Technology Corp.) July 2003–August 2005, \$23,727.
10. "Advanced Radar and Electro-Optical Sensor Systems" (with A. Fumagalli, P. Balsara, F. Bastani, D. Bhatia and I-L. Yen), US Army Space and Missile Defense Command, \$210,000, June 2002 to June 2004.
11. "Causally ordered broadcast in mobile wireless networks," Raytheon-E Systems, \$35,000, January - December 1997.
12. "Research in mobile computing (Matching grant)," ElectroSpace Systems, Inc., \$15,000, May 1996 - December 1996.

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13. "Research in mobile computing," Texas Instruments, Unrestricted, \$7,500.
14. "A framework for the design and development of wireless networks and mobile computing systems," *Texas Advanced Technology Program*, \$136,790, January 1996 - August 1998.
15. "Data management in mobile wireless environments," *ElectroSpace Systems, Inc.*, \$30,000, June 1994 - October 1995
16. "Efficient on-line restoration in telecommunication networks," *Alcatel Network Systems*, \$46,500, March 1993 - February 1994.
17. "Network modeling and optimization problems," *Alcatel Network Systems*, \$90,000, May 1992 - February 1993 (with G.R. Dattatreya).
18. "Validating protocols by software testing," *Texas Advanced Technology Program*, \$88,670, January 1992 - August 1994.
19. "Design of reliable distributed systems through software testing and crash recovery," *Research Initiation Award, National Science Foundation*, \$36,626, September 1991 - August 1995.

4.6 Doctoral advisement/direction

1. "Efficient recovery in distributed systems," Ph.D. thesis, Tony Juang, August 1992, Thesis advisor.
2. "Testing and mobility issues in distributed systems," Ph.D. Thesis, December 1995, Sridhar Alagar, Thesis advisor.
3. "Video Transmission in Wireless Networks" (Co-Advisor), Hao Wang, July 2005, Co-chair of supervising committee.
4. "Tools for Digital Forensics" Thesis advisor, Sritranjani Sitaraman, Thesis advisor, May 2006.
5. "Optimization Algorithms in Sensor Networks" Thesis Advisor, Maulin Patel, December 2006.
6. "Efficient QoS Enabled MAC Protocols for Ad-Hoc Networks", Thesis Advisor, Noun Choi, Expected May 2007.
7. "Integrating 3G Wireless Networks and WLAN", Thesis Advisor, Shanthly Menezes, expected August 2007.
8. "Algorithms for Cognitive radio networks," S. Krishnamurthy, co-advisor.

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4.7 Presentations

1. "A unified approach to fault-tolerance in distributed computing systems," Institute of System Sciences, National University of Singapore, December 10, 1990.
2. "A unified approach to fault-tolerance in distributed computing systems," Department of Computer Science and Automation, Indian Institute of Science, Bangalore, December 20, 1990.
3. "A unified approach to fault-tolerance in distributed computing systems," Department of Computer Science and Engineering, Indian Institute of Technology, Madras, January 11, 1991.
4. "Testing and debugging distributed programs," Department of Computer and Information Science, The Ohio State University, Columbus, OH, May 24, 1993.
5. "Testing and debugging distributed programs," Department of Computer Science, State University of New York at Albany, August 19, 1993.
6. "Distributed evaluation of global predicates," Department of Computer Science, Michigan State University, October 5, 1993.
7. "Distributed evaluation of global predicates," Coordinated Sciences Laboratory, University of Illinois, Urbana, October 6, 1993.
8. "Testing and debugging distributed programs," Department of Electrical Engineering and Computer Science, University of Illinois at Chicago, October 8, 1993.
9. "Distributed evaluation of global predicates," Department of Computer Science, University of Oklahoma, Norman, OK, March 3, 1994.
10. "Survivable telecommunication networks: Tolerating link failures," Integrated Systems Laboratory, Texas Instruments, Dallas, October 5, 1994.
11. "Survivable telecommunication networks: Tolerating link failures," Fujitsu Network Transmission Systems, Richardson, November 29, 1994.
12. "Efficient Path Restoration in DCS Mesh Networks," MCI Communications, Richardson, September 22, 1995.
13. "Some common research problems in mobile computing and cellular telephony," PCS group, Bell Northern Research, Richardson, October 19, 1995.

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14. "Systems research at UTD," Switching Products Division, DSC Communications Corp., November 13, 1997.
15. "Systems research at UTD," Wireless Multimedia group, Nortel, Richardson, TX, December 8, 1997.
16. "Survivable Telecommunication Networks: Tolerating Link Failures," Department of Information Systems and Computer Science, National University of Singapore, January 8, 1998.
17. "Distributed Traffic Restoration in Mesh Telecom Networks," Department of Computer Science, Texas A&M University, April 6, 1998.
18. "Survivable telecom networks," Department of Computer Science, Arizona State University, Tempe, AZ, March 1999.
19. "Traffic restoration in backbone networks," Department of Computer Science, National Taiwan University, Taipei, Taiwan, May 25, 1999.
20. "Innovative Wireless Networking Technologies," Samsung Telecom, Richardson, TX, March 2003.
21. "MAC and Routing Protocols for Sensor Networks," Texas Instruments, Dallas, TX, February 2, 2004.
- item "Algorithms for Cognitive Radio Networks," Villanova University, October 21, 2005.
22. "Distributed Algorithms for Auto-Configuration in Cognitive Radio Networks," University of Central Florida, October 28, 2005.
23. "Routing and Auto-Configuration in Cognitive Radio Networks," Arizona State University, November 15, 2005.

5 Service—reviewing, professional societies, university committees

5.1 Reviewing for professional societies

1. Steering Committee Co-Chair, ASSET 1999 and ASSET 2000 (Symposium on Application Specific System and Software Engineering Technology), Dallas.
2. Member of program committee, International Conference on Networks 2000 (ICON'2000), Singapore.

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3. NSF review panel member, 1999, 2003.
4. Member of program committee, International conference on Parallel and Distributed Computing and Systems (PDCS'99-07).
5. Member of program committee, International conference on Distributed Computing Systems (ICDCS, 1998), IEEE.
6. Member of program committee, Symposium on Reliable Distributed Systems, 2004
7. Member of program committee, IEEE High-Assurance Systems Engineering Workshop, 1997.
8. Member of program committee, COMPSAC 1995 and COMPSAC 1996
9. Secretary, IEEE Computer Society (Dallas Chapter), 1995.
10. Reviewer for numerous conferences
11. Reviewer for National Science Foundation
12. Reviewer for IEEE Transactions on Computers
13. Reviewer for IEEE Transactions on Parallel and Distributed Systems
14. Reviewer for IEEE Transactions on Software Engineering
15. Reviewer for IEEE Transactions on Reliability
16. Reviewer for Journal of System and Software
17. Reviewer for Journal of Algorithms
18. Reviewer for Distributed Computing
19. Reviewer for Journal of Parallel and Distributed Computing
20. Reviewer for Information Processing Letters
21. Reviewer for Parallel Processing Letters
22. Reviewer for Journal of Computer and Software Engineering
23. Reviewer for IEEE Computer
24. Reviewer for IEEE Computer Society Press

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5.2 University committees

1. Chair, University Intellectual Property Committee, September 2002-2004.
2. Chair, Telecomm Engineering Program, Jan 2004–December 2006.
3. Member, Faculty Senate, September 2003-now.
4. Member, Dean Search Committee, August 2002–June 2003.
5. Member, Governing Committee, Telecom Engineering Program, January 2002-now.
6. Member, Department Reorganization Committee, Fall 2001.
7. Member, Faculty Search Committees, September 2003–2004.
8. Member, Building Planning Committee, Jonsson School, September 2003–December 2003.
9. Group Coordinator, Networking Group, March 2002-2004.
10. Chair, Colloquium Committee 8/97-9/98.
11. Chair, Faculty Search Committee, 9/95–8/97.
12. Member, Faculty Search Committee, 9/92–6/93, 9/95-8/96, 9/99-8/00.
13. Member, Equipment Committee, 9/95-8/1997.
14. Member, Curriculum Committee, 9/95-8/1997.
15. Member, Colloquium committee, 9/92-8/97.
16. Member, Admissions and Financial Aid committee, 9/89-8/92, 9/93-8/95.
17. Member, School policy planning committee, 9/91-9/92.

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Identification

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Resume

Education History

Ph. D. - May 1996, University of Saskatchewan, Canada, Computer Science.
M. Sc. - May 1992, University of Saskatchewan, Canada, Mathematics.
B. Sc. - July 1989, University of Science and Technology of China, Hefei, China, Mathematics.

Employment History - Principal Positions

Associate Professor, 2002, 9 - now
Assistant Professor, 2000, 8 - 2002, 8
Assistant Professor, 1999, 9 - 2000, 6
Assistant Professor, 1996, 6 - 1999, 5
Post-Doctoral Fellow, 1995, 9 - 1996, 5
Programmer Analyst, 1993, 6 - 1993, 9
SED System Inc., Saskatoon, Canada

Employment History - Visiting Positions

IIITA Visiting Professorship on IT, Korea, Sept 2003- December 2003,
Chonbuk National University (CBNU), South Korea
Visiting Assistant Professor, May 2002- August 2002, Stanford University
Visiting Assistant Professor, May 2001- August 2001, University of California at Berkeley.
Visiting Assistant Professor, August 2000, University of Maryland, College Park
Visiting Assistant Professor, June 2000 - July 2000, University of Minnesota, MN.
Visiting Assistant Professor, 1999, 6 - 1999, 8 University of Minnesota, MN.

Professional Recognitions - honors, memberships

Editor Positions

IEEE Transactions on VLSI, published by IEEE Circuits and Systems Society.

IEEE Transactions on Circuits and Systems -II, published by IEEE Circuits and Systems Society.

Journal of Circuits, Signals, and Systems, published by Birkhäuser Boston.

Journal of Applied Signal Processing, published by European Association of Signal, Image, and Signal Processing.

International Journal of Parallel and Distributed Systems & Networks, published by ACTA Press.

IEICE Transactions on Information and Systems, Vol. E86-D, No.9, September 2003, published by The Institute of Electronics, Information and Communication Engineers, Special Issue on Parallel and Distributed Computing, Applications and Technologies

Patents awarded

- [P1] Yuke Wang, Anand Krishnamurthy, Lie Qian, Philippe Dauchy, and Alberto Conte, "Load Adaptive Router in QoS Architecture," *Alcatel France*, March 20, 2003.
- [P2] Lie Qian, Anand Krishnamurthy, Yuke Wang, Yiyan Tang, Philippe Dauchy, and Alberto Conte, "S-BIND Traffic Model and Gamma H-BIND Admission Control Algorithm for On-Line Traffic," *Alcatel France*, March 20, 2003.
- [P3] Yuke Wang, Yun Zhang, Yiyan Tang, Anand Krishnamurthy, Lie Qian, and Gerard Damm, "Disjoint Graph Based Classification Algorithm for Range-Specified Rules," *Alcatel Canada*, August 20, 2003.
- [P4] Lie Qian, Yiyan Tang, Yuke Wang, B. Bou-Diab, and W. Olesinski, "Dynamic and Static Tunneling Schemes for Scalable Multicast in MPLS Network," with *Alcatel Canada*, November 2004

Invited Papers

- [I1] C. McCrosky and Yuke Wang, "Boolean functions", *Encyclopedia of Electrical and Electronics Engineering*, John Wiley & Sons, Inc., Edited by John Webster, December 1997.
- [I2] Yuke Wang and Keshab Parhi, "A new low power Adder", *Asilomar Conference on Signals, Systems, and Computers*, Monterey, CA, November, 2000.
- [I3] Yuke Wang, and Keshab Parhi, "A unified adder", *Asilomar Conference on Signals, Systems, and Computers*, Monterey, CA, November, 2001.

Articles in refereed Journals

- [J1] Yuke Wang and Mostafa Abd-el-Barr, "A New algorithm for RNS decoding", *IEEE Transactions on Circuits and Systems-I* Vol. 43, No. 12, pp. 998 -1001, December 1996.
- [J2] Yuke Wang and Carl McCrosky, "Negation trees: a unified approach to Boolean function complementation", *IEEE Transactions on Computers*, Vol. 45, No. 5, pp. 626-630, May 1996.
- [J3] Yuke Wang, M. Abd-el-Barr, and C. McCrosky, "A new algorithm for symmetric OBDD", *IEEE Transactions on Computers*, Vol. 46, No. 6, pp. 731 -733, June 1997.

- [J4] Yuke Wang and C. McCrosky, "Solving Boolean equations using ROSOP forms", *IEEE Transactions on Computers*, Vol. 47, No. 2, pp. 171–177, February 1998.
- [J5] Xiaoyu Song and Yuke Wang, "On the crossing distribution problem", *ACM Transactions on Design Automation of Electronic Systems*, Vol. 4, No. 1, pp. 39–51, January 1999.
- [J6] Yuke Wang, M. Swamy, O. Ahmad, "Residue-to-binary number converters for three moduli sets", *IEEE Transactions on Circuits and Systems - II*, Vol. 46, No. 2, pp. 180–183, February, 1999.
- [J7] Y. Tang, X. Song, Yuke Wang, "Diagnosis of clustered faults for identical degree topologies", *IEEE Transactions on Computer-Aided Design*, Vol. 18, No. 8, pp. 1192–1201, August 1999.
- [J8] H. Shen, D. Evans, W. Liang, Yuke Wang, "Efficient multiple multicast in WDM networks", *IEEE Trans. on Information Systems*, Vol. E82-D, No. 6, pp. 1074–1078, August 1999.
- [J9] Yuke Wang, "Residue-to-binary converters based on New Chinese Remainder Theorems", *IEEE Transactions on Circuits and Systems - II*, Vol. 47, No. 3, pp. 197–206, March, 2000.
- [J10] X. Song, Y. Tang, D. Zhou, and Yuke Wang, "Wire space estimation and routability analysis for gate array chips", *IEEE Transactions on Computer-Aided Design*, Vol. 19 No. 5, pp. 624–628, May 2000.
- [J11] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "A high speed residue-to-binary converter and a scheme for its VLSI implementation", *IEEE Transactions on Circuits and Systems - II*, Vol. 47, No. 12, pp. 1576–1581, December 2000.
- [J12] Yuke Wang, C. McCrosky, and X. Song, "Single-faced Boolean functions and their minimization", *The Computer Journal*, Vol. 44, No. 4, pp. 280–291, April 2001.
- [J13] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "A parallel residue-to-binary converter", *Journal of VLSI Design*, vol. 14 (2), pp. 183–191, Feb. 2002.
- [J14] Yuke Wang; Pai, C.; Song, X., "The design of hybrid carry-lookahead/carry-select adders", *IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing*, Volume: 49 Issue: 1, Jan 2002, Page(s): 16–24
- [J15] *Wei Wang; Swamy, M.N.S.; Ahmad, M.O., Yuke Wang*, "A note on "A high-speed residue-to-binary converter for three-moduli ($2^k - 1, 2^{k-1} - 1$) RNS and a scheme

for its VLSI implementation", *IEEE Trans. on Circuits and Systems - II*, Volume: 49 Issue: 3, Mar 2002, Page(s): 230–230.

- [J16] *Hung Tien Bui; Yuke Wang; Yingtao Jiang*, "Design and analysis of low-power 10-transistor full adders using novel XOR-XNOR gates", *IEEE Trans. on Circuits and Systems - II*, Volume: 49 Issue: 1, Jan 2002, Page(s): 25–30
- [J17] Yuke Wang, X. Song, M. Aboulhamid, H. Shen, "Near-optimal residue to binary converter for the moduli", *IEEE Transactions on Signal Processing*, Volume: 50 Issue: 7, Jul 2002, Page(s): 1772–1779.
- [J18] Zhong Wang, Edwin Sha, and Yuke Wang, "Partitioning and scheduling DSP applications with maximal memory access hiding", *EURASIP JOURNAL ON APPLIED SIGNAL PROCESSING* 2002 (9): 926–935 SEP 2002
- [J19] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "Comprehensive VLSI study of residue -binary arithmetic conversion", *IEEE Transactions on Circuits and Systems*, February 2003, Volume: 50 Issue: 2, Page(s): 235–243.
- [J20] Y. Jiang, Abdul Karim Al-Sheraidah, Yuke Wang, Edwin Sha, and Jin-gyun Chung, "A novel low power multiplexer-based full adder", *IEEE Trans. on Circuits and Systems - II, July 2004*, Volume: 51 Issue: 7, Page(s): 345–348
- [J21] Y. Jiang, Yuke Wang, Y. Savaria, and X. Song, "Computation of signal output probability for Boolean functions represented by OBDD", *International Journal of computers and Mathematics with Applications*, Vol. 47, 2004, pp. 1865–1874.
- [J22] X. Song, G. Yang, M. Perkowski, and Yuke Wang, "Algebraic Characterization of Reversible logic gates", *Theory of Computing Systems*, December 2004, page 1–9.
- [J23] Wade Trappe, Yuke Wang, and R. J. Liu, "Conference Key Establishment for Heterogeneous Networks" *IEEE/ACM Transaction on Networking*, vol. 13, Issue 1, pp. 134–146, Feb. 2005.
- [J24] Kuehnel, R.; Theiler, J.; Yuke Wang, "Parallel random number generators for sequences uniformly distributed over any range of integers", *IEEE Transactions on Circuits and Systems I: Regular Papers*, Volume 53, Issue 7, July 2006 Page(s): 1496 – 1505
- Publication in Referred Conferences**
- [C1] E. Cerny, Yuke Wang, M. Aboulmid, "Discrete timing scheduling under real-time constraints", *Journées Bordelaises ordres partiels et algorithmes distribues*, Bordeaux, France, June 1997.

- [C2] E. Cerny, Yuke Wang, M. Aboulhamid, "Discrete timing scheduling for time diagrams", IFIP INTERNATIONAL WORKSHOP ON LOGIC AND ARCHITECTURE SYNTHESIS (IWLAS'97), Institut National Polytechnique de Grenoble, France, December 16-18, 1997
- [C3] Yuke Wang, X. Song, M. Aboulhamid, "Near-optimal residue to binary converter for the moduli "8th" Great Lakes Symposium on VLSI, Lafayette, Louisiana, February 19-21, 1998
- [C4] Yuke Wang, M. N. Swamy, O. Ahmad, "Three number moduli sets based residue number systems", 1998 IEEE International Symposium on Circuits and Systems, Monterey, California, USA, May 31-June 3, 1998.
- [C5] X. Song, Yuke Wang, "On the board level routing problem for FPGA-based logic emulation", IEEE 1998 Canadian conference on Electrical and computer engineering, Waterloo, Ontario, Canada, May 1998.
- [C6] Yuke Wang, T. Le-Ngoc, "An improved VLSI design for adaptive equalizer based residue number systems", IEEE International Symposium on Wireless Communications, Montreal, Canada, May 1998.
- [C7] Yuke Wang, "A residue to binary converter based on New Chinese Remainder Theorem I", Third International Conference on ASIC, Beijing, China, October 20-23, 1998.
- [C8] Yuke Wang, "New Chinese Remainder Theorem with applications for DSP", the Thirty second annual Asilomar Conference on Signals, Systems, and Computers, USA, November 1 - November 4, 1998.
- [C9] Yuke Wang, "Parallel implementation of the New Chinese Remainder Theorems", the Second IASTED International conference on Parallel and Distributed Computing and Networks, December, 1998, Australia
- [C10] J. Augustine, W. Lynch, Yuke Wang, and Asim Al-Khalili, "Lossy compression of images using logic minimization", the Twelfth International Conference on VLSI design, Goa, India, January 7-10, 1999.
- [C11] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "A parallel residue-to-binary converter", International Conference on Acoustics, Speech, and Signal Processing, Arizona, US, March 1999.
- [C12] Yuke Wang, X. Song, M. Aboulmid, "New residue number comparison algorithm", 9th Great Lakes Symposium on VLSI, Michigan, US, March 1999.

- [C13] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "A high speed residue-to-binary converter and a scheme for its VLSI implementation", IEEE International Symposium on Circuits and Systems, Florida, US, June 1999.
- [C14] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "Comprehensive VLSI study of residue -binary arithmetic conversion", Canadian conference on Electrical and computer engineering. Alberta, Canada, May 1999.
- [C15] Wei Wang, M. N. S. Swamy, O. Ahmad, Yuke Wang, "New Chinese Remainder Theorems applications to special moduli sets", Canadian conference on Electrical and computer engineering, Alberta, Canada, May 1999.
- [C16] Y. Jiang, Y. Tang, Yuke Wang, and Y. Savaria, "Evaluating the output probability of Boolean functions without float point operations", Canadian conference on Electrical and computer engineering, Alberta, Canada, May 1999.
- [C17] A. Skavantzos and Yuke Wang, "Application of New Chinese Remainder Theorems to two pairs conjugate moduli sets", IEEE Pacific Rim Conference on Communications, Computers and Signal Processing, Victoria, Canada, August, 1999.
- [C18] A. Skavantzos and Yuke Wang, "New efficient RNS-to-weighted decoders for conjugate pair moduli residue number systems", Asilomar Conference on Signals, Systems, and Computers, October 1999.
- [C19] Yuke Wang, Keshab. Parhi, "Explicit Cook-Toom algorithm for linear convolution", International Conference on Acoustics, Speech, and Signal Processing, Turkey, June 2000.
- [C20] H. Bui, K. Al-sheraidah, and Yuke Wang, "Design and analysis of 10-transistor full adders using novel Xor-Xnor gates", International Conference on Signal Processing 2000, World Computer Congress, Beijing, China, August 2000.
- [C21] Y. Jiang, Y. Wang and J. Wu, "Physical design and evaluation of low-power CMOS full adders," Proc. Int. Conf. On Chip Design Automation 2000, Beijing, China, Aug. 2000.
- [C22] Yuke Wang, "New Chinese Remainder Theorems for polynomials", The 13th International Conference on Parallel and Distributed Computing Systems, Las Vegas, August 2000.
- [C23] Yuke Wang, Rolf Drechsler, and Xiaoyu Song, "Optimal symmetry detection for OKFDDs " Middle West Symposium on Circuits and Systems, Michigan, August 2000.
- [C24] Hung Tien Bui, Abdul Karim Al-Sheraidah, and Yuke Wang, "New 4-transistor XOR and XNOR designs", Asia Pacific ASIC design, South Korea, August 2000.

- [C25] Yuke Wang and Keshab Parhi, "A new low power Adder", Asilomar Conference on Signals, Systems, and Computers, November 2000.
- [C26] C. Yeh, B. Parhami, and Yuke Wang, "Designs of counters with near minimal counting/sampling period and hardware complexity", Proc. 34th Asilomar Conference of Signals, Systems, and Computers, Pacific Grove, CA 2000, Oct. 29-Nov. 1.
- [C27] Z. Wang, E. Sha, and Yuke Wang, "Optimal partitioning and balanced scheduling with maximal overlap of data footprints", ACM 11th Great Lake Symposium on VLSI, West Lafayette, USA, March 22-23, 2001.
- [C28] Wade Trappe, Yuke Wang, Ray, Liu, "Group key agreement using divide-and-conquer strategies", 2001 Conference on Information Sciences and Systems, March, 2001.
- [C29] Abdul Karim Al-Sheraidah, Y. Jiang, and Yuke Wang, "A set of novel Multiplexer-based architectures for full adder designs", 5th WSES/IEEE conference on circuits, systems, and communications, Crete, Greece, July 8-15.
- [C30] Yiyang Tang, Y. Jiang, and Yuke Wang, "Cache-sorting-based CAM for VPI/VCI translation in ATM switch", 5th WSES/IEEE conference on circuits, systems, and communications, Crete, Greece, July 8-15.
- [C31] Yingtao Jiang, Yuke Wang, Edwin Sha, "Distributed scaling algorithm for large FFT computation using fixed-point arithmetic", The 14th International Conference on Parallel and Distributed Computing Systems Radisson Hotel Richardson, Dallas, Texas, USA, August 8 - 10, 2001.
- [C32] Y. Jiang, Y. Wang, and A. Skavantzios, "A label search chip with cache-based CAM architecture", accepted by 44th Midwest Symposium on Circuits and Systems, Dayton, Ohio, Aug. 2001.
- [C33] Abdul Karim Al-Sheraidah, Y. Jiang, and Yuke Wang, "A novel low power Multiplexer-based full adder", European Conference on Circuit Theory and Design, 2001 ECCTD '01 "Circuit Paradigm in the 21st Century", Espoo, Finland, 28-31 August, 2001.
- [C34] Y. Jiang, Y. Wang and E. Sha, "On low-power array multipliers," accepted by 8th International IEEE Conference on Electronics, Circuits, and Systems (ICECS'01), Malta, Sept. 2001.
- [C35] Yuke Wang, Y. Jiang and E. Sha, "A comprehensive power evaluation of CMOS full adders," accepted by ISIC-2001 (9th Int. Symposium on Integrated Circuits, Devices & Systems), Singapore, Sept. 2001.

- [C36] Y. Tang, Y. Jiang, and Y. Wang, "Distributed cache-sorting-based CAM architecture for MPLS over ATM," accepted by Proc. 4th Int. Conf. On ASIC (ASICON), Shanghai, China, Oct. 2001.
- [C37] Yingtao Jiang, J. Ma, A. Saidi and Yuke Wang, "Parallel Turbo decoder using a low latency Max-Log-MAP kernel for a VLIW DSP," Proc. SPIE Asia-Pacific Optical and Wireless Communications'01 (APOC 2001), Beijing, China, Nov. 2001.
- [C38] Y. Tang, Yingtao Jiang and Yuke Wang, "Scalable CAM-based search engine for MPLS over ATM Networks," Proc. GLOBECOM 2001, San Antonio, Texas, Nov. 2001.
- [C39] Mei Yang, Yuke Wang, Jinchu Wang, and S.Q. Zheng, "Optimized parallel implementation of polynomial approximation mathematical functions on a DSP processor", Midwest Symposium on Circuits and Systems, 2001, August 14-17, Ohio.
- [C40] Yuke Wang, and Keshab Parhi, "A unified adder", invited paper, Asilomar Conference on Signals, Systems, and Computers, November 2001.
- [C41] M. Yang, Yuke Wang, J. Wang, S. Zheng, "Optimized scheduling and mapping of logarithm and arctangent functions on TI TMS320C67x processors", Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Orlando, Florida, USA, May 2002.
- [C42] Yingtao Jiang, Tian Zhou, Yiyang Tang and Yuke Wang, "Twiddle-Factor-Based FFT Algorithm with Reduced Memory Access", Proc. International Parallel and Distributed Processing Symposium, Fort Lauderdale, Florida, April 2002.
- [C43] Yingtao Jiang, Yiyang Tang, and Yuke Wang, "Transforming FFT Structures for Minimized Memory Reference", Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Orlando, Florida, USA, May 2002.
- [C44] Yingtao Jiang, Yiyang Tang, and Yuke Wang, "A High Speed DSP-Based TURBO CODEC For 3rd Generation Mobile Communication System", Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Orlando, Florida, USA, May 2002.
- [C45] Yiyang Tang, Yingtao Jiang, Yuke Wang, and M. N. S. Swamy, "A Trace-Back-Free Viterbi Decoder Using A New Survival Path Management Algorithm", Proc. IEEE International Symposium on Circuits and Systems (ISCAS), Scottsdale, Arizona, May 2002.

- [C46] Wade Trappe, Yuke Wang, Ray, Liu, "Establishment of Conference Keys in Heterogeneous Networks", International Conference on Communications, April 28-May 2, 2002, New York, USA
- [C47] Yiyan Tang, Lie Qian, Yuke Wang and Yvon Savaria, "Memory Reference Reduction Methods for FFT Implementation on DSP," IEEE International Symposium on Circuits and Systems 2003, Bangkok, Thailand, May 25-28, 2003.
- [C48] Zhongfeng Wang, Yiyan Tang and Yuke Wang, "Low Hardware Complexity Parallel TURBO Decoder Architecture," accepted by IEEE International Symposium on Circuits and Systems 2003, Bangkok, Thailand, May 25-28, 2003.
- [C49] Anand Krishnamurthy, Yiyan Tang, Yuke Wang, "An Efficient Implementation of Multi-Prime RSA on DSP Processor," accepted by IEEE International Conference on Acoustics, Speech, and Signal Processing, HongKong, China, April 6-10, 2003.
- [C50] Richard Kuehnel and Yuke Wang, "A Method of Generating Uniformly Distributed Sequences over $[0, K]$ where $K+1$ is not a Power of Two," International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2003), Hong Kong, Apr. 6 - 10, 2003.
- [C51] A. Krishnamurthy, Yiyan Tang, C. Xu, and Yuke Wang, "An efficient implementation of multi-prime RSA on DSP processor," International Conference on Multimedia and Expo (ICME'03), Baltimore, Maryland, USA, July 6-9 2003, pp. 437- 440.
- [C52] Lie Qian, Yiyan Tang, Yuke Wang, O. Ahmad, and M.N.S Swamy, "Explore parallelism for Viterbi decoder implementation on DSP," System on Chip (SoC) Design Conference 2003, Seoul, Korea, Nov. 5-6, 2003.
- [C53] Yiyan Tang, Lie Qian, and Yuke Wang, "Twiddle factor based memory reduction method for FFT implementation on DSP," IEEE International Midwest Symposium on Circuits and System Conference (MWSCAS'03), Cairo Egypt, Dec. 27-30, 2003.
- [C54] Yiyan Tang, Lie Qian, Bashar Bou-Diab, Anand Krishnamurthy, Gerard Damm, and Yuke Wang, "High-Performance Implementation For Graph-Based Packet Classification Algorithm On Network Processor," *Proc. of the IEEE International Conference on Communications (ICC)*, Paris, France, June 20-24, 2004.
- [C55] Yuke Wang, Yun Zhang, Yiyan Tang, Anand Krishnamurthy, Gerard Damm, and Bashar Bou-Diab, "Novel Disjoint Graph Based Algorithm For Multi-Field Range-Based Packet Classification," *Proc. of the IEEE International Conference on Communications (ICC)*, Paris, France, June 20-24, 2004.

- [C56] Lie Qian, Anand Krishnamurthy, Yuke Wang, Yiyan Tang, Philippe Dauchy, and Alberto Conte, "New Traffic Model and Statistical Admission Control Algorithm for Providing QoS Guarantees to On-Line Traffic," *IEEE Globecom 2004*, Dallas, Texas, Nov. 29 - Dec. 3, 2004.
- [C57] Yuke Wang, Anand Krishnamurthy, Lie Qian, Philippe Dauchy, and Alberto Conte, "A-Serv: A Novel Architecture Providing Scalable Quality of Service," *IEEE Globecom 2004*, Dallas, Texas, Nov. 29 - Dec. 3, 2004.
- [C58] Qiong Zhang, Yuke Wang, "A Centralized Key Management Scheme for Hierarchical Access Control", *IEEE Globecom 2004*, Dallas, Texas, Nov. 29 - Dec. 3, 2004.
- [C59] Yiyan Tang, Yuke Wang, Jin-Gyun Chung, S. Song, and M.Lim, "High Speed Assembly FFT Implementation For Memory Access Reduction On DSP Processors," IEEE International Conference on Electronics Circuits and Systems (ICECS), Tel-Aviv, Israel, Dec. 13-15, 2004.
- [C60] Lie Qian, Yuke Wang, and Hong Shen "Token bucket based statistical regulator for S-BIND modeled on-line traffic," *2005 IEEE International Conference on Communications, ICC 2005*, vol. 1, pp. 125-129, 16-20 May 2005.
- [C61] A. Krishnamurthy, Lie Qian, Yuke Wang, P. Dauchy, and A. Conte, "A new coordinated scheduling algorithm in distributed bandwidth broker QoS architecture," *2005 IEEE International Conference on Communications, ICC 2005*, vol. 1, pp. 384-388, 16-20 May 2005.
- [C62] Lie Qian, Yiyan Tang, Yuke Wang, B. Bou-Diab, and W. Olesinski, "A new fair bandwidth allocation algorithm for multimedia multicasting in diffserv," *IEEE Global Telecommunications Conference GLOBECOM 2005*, vol. 2, pp. 847-851, 28 Nov.-2 Dec. 2005.
- [C63] Qiong Zhang, V.M. Vokkarane, Yuke Wang, and J.P. Jue, "Analysis of TCP over optical burst-switched networks with burst retransmission," *IEEE Global Telecommunications Conference GLOBECOM 2005*, vol. 4, pp. 1978-1983, 28 Nov.-2 Dec. 2005.
- [C64] Yiyan Tang, Lie Qian, and Yuke Wang, "Optimized software implementation of a full-rate IEEE 802.11a compliant digital baseband transmitter on a digital signal processor," *IEEE Global Telecommunications Conference GLOBECOM 2005*, vol. 4, pp. 2194-2198, 28 Nov.-2 Dec. 2005.
- [C65] Qiong Zhang, V.M. Vokkarane, Yuke Wang, and J.P. Jue, "Evaluation of burst retransmission in optical burst-switched networks," *2nd International Conference on Broadband Networks*, pp. 297-303, Oct. 3-7, 2005.

[C66] Qingyang Hu, Weiwei Hu, Mingzhou Jin, Yuke Wang, Zhuoxiu Zhang, "A wavelength retuning scheme with no service interruption in survivable optical networks" IEEE International Conference on Communications (ICC), 2006, Volume 6, June 2006
Page(s):2506 - 2511

[C67] Lie Qian, Yiyen Tang, Yuke Wang, Bashar Bou-Diab, and Wladek Olesinski, "A New Scalable Multicast Solution in MPLS Networks," IEEE Global Telecommunications Conference (GLOBECOM 06), San Francisco, Nov. 27- Dec. 1 2006.

Seminars

McGill University	May 1996
Stanford University	November, 1998
UC Santa Barbara	November, 1998
University of Windsor	November, 1998
University of Minnesota	December, 1998
Osaka University, Japan	December, 1998
University of Victoria	January, 1999
Iowa State University	April 1999
University of New Mexico	July 1999
University of Notre Dame	August 1999
University of Maryland	August 2000
Stanford University	August 2001

External funding for original investigations

- (1) "Boolean Function Manipulation and Representation", **PI Dr. Yuke Wang**, Faculty Research Development Start-up Grant Concordia University, 1996-1999, \$45,000.
- (2) "Data Structures and Algorithms for Boolean Functions and Arithmetic Functions in VLSI design", **PI Dr. Yuke Wang**, National Science and Engineering Research Council of Canada (NSERC, equivalent to NSF), 1997-2001, \$61,600
- (3) "VLSI Design of Residue Arithmetic Circuits" **PI Dr. Yuke Wang**, FCAR Nouveaux Chercheurs , FCAR (Quebec Funding agency, equivalent to CARBER award), 1998-2001, \$43,800.
- (4) "Equipment for VLSI research", **PI Dr. Yuke Wang**, Concordia Engineering Faculty Infrastructure Support, 1998, \$9,647.
- (5) "Apply logic synthesis for Image compression", **PI Dr. Yuke Wang**, Concordia Engineering Faculty CARA fund, 1998, \$6,000.
- (6) CMC Equipment Competition, **PIs, Dr. Yuke Wang**, et. al., \$32,625, 1997-1998.
- (7) "Development of Algorithms and Architecture for Signal and Image Processing with Applications", **PIs, Dr. Swamy, Dr. Ahmad, Dr. Raut, Dr. Yuke Wang, Dr. Plotkin**, FCAR team grant, 1997-2000, \$114,390.
- (8) "FIR Filter Design for Wireless Communications", **PIs Dr. Yuke Wang, Dr. Swamy, Dr. Ahmad**, Micronet, \$20,000, 1998-1999,
- (9) "Implementation and evaluation of DSP processors", **PIs Dr. Edwin Sha, Dr. S.Q.Zheng, Dr. Yuke Wang**, Texas Instruments, December 2000, \$49,514.00.
- (10) "DSP Processor Evaluation", **PI Dr. Yuke Wang**, Analog Device Inc., September 2001, \$30,000, Equipment grant.
- (11) "Design, Implementation, and Evaluation of Network Processors for IPv6", - **PI Dr. Yuke Wang**, Alcatel, January 2002-March 2003, \$30,000.
- (12) "Integrated Solutions to assure IP QoS", Alcatel, July, 2002 - June 2003, \$80,000, - **PI Dr. Yuke Wang**.
- (14) "Implementation of VPN support on Network Processors", - **PI Dr. Yuke Wang**, Alcatel, April 2003- December 2003, \$34,000.
- (15) "Multicast Bandwidth Allocation and Metering Schemes for Network Processor based Implementation", - **PI Dr. Yuke Wang**, Alcatel, Dec 2003 to December 2004, \$27,500.
- (16) "Implementation of DSL modems in DSP processors", Chonbuk National University, **PI Dr. Yuke Wang**, September 2003 - August 2004, \$15,000.
- (17) "VxWorks Developer's Toolkit", - **PI Dr. Yuke Wang**, WindRiver, Oct 2003, \$32,000_ equipment.

Teaching

Post-doctoral Fellow supervised

- (1) Dr. J. Augustine, "Application of logic synthesis to image compression", Post-doctoral, Concordia University, February 1998- January 1999.

Doctoral advisement/direction

- (1) Dr. W. Wang, January 1998 - August, 2002, Concordia University, Canada. Dr. Wang is current an Assistant Professor at Indiana University - Purdue University at Indianapolis.
- (2) Dr. Yingtao Jiang, University of Texas at Dallas, August 2001. Currently, Dr. Jiang is an Assistant Professor at University of Nevada at Las Vegas.
- (3) Dr. Qiong Zhang, August, 2005. Currently, Dr. Zhang is an Assistant Professor at Arizona State University
- (4) Dr. Yiyang Tang, December 2005. Currently, Dr. Tang is working in 3DSP Co. in California, USA
- (5) Dr. Lie Qian, August, 2006. Dr. Qian is currently an Assistant Professor at Southeastern Oklahoma University.

Masters advisement/direction

- (1) Mr. M. Dalal, "Physical Layout Tools and Algorithms", Concordia University, May 1997 - April 1998.
- (2) Ms. D. Surti, "Design of Residue Arithmetic Circuits", Concordia University, May 1997 - April 1998.
- (3) Mr. T. Bui, "Design of 10-transistor low power full adders", Florida Atlantic University, September 1999.
- (4) Mr. Abdul-Karim Al-Sheraidah, "Novel Multiplexer-based architectures for full adder design", Florida Atlantic University, January 2000.

Ph.D. advising committee

- (1) Dr. C. Savin, "Signal estimation techniques using Lp-Norm optimal stack filters with applications to image and video processing", September 5, 1997, Concordia.
- (2) Dr. S. Shehata, "High level synthesis of digital signal processing cores targeting FPGA's", September 26, 1997, Concordia University
- (3) Dr. J. Said, "Automatic processing of documents and bank cheques", January 9, 1998, Concordia University

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Classroom Teaching

Academic Year	Class	Number of Students
1996/97	<u>Undergraduate</u>	
	Digital System Design	38 students
	Digital System Design	60 students
	Introduction to VLSI system	25 students
<u>Graduate</u>		
1997/98	<u>Undergraduate</u>	
	Laplace Transforms and Advanced Differential Equations	58 students
	Sequential circuits	57 students
	Introduction to VLSI design	9 students
	Computational Algorithms for VLSI design	7 students
<u>Graduate</u>		
1998/99	<u>Undergraduate</u>	
	Digital System Design	57 students
	Digital System Design	70 students
	Introduction to VLSI system	25 students
<u>Graduate</u>		
1999/00	<u>Undergraduate</u>	
	Design and Analysis of Algorithms	15 students
	File Organize Method	20 students
	Introduction to Object -Oriented Sys.	47 students
	Custom VLSI design	7 students
<u>Graduate</u>		
2000/01	Computer Architecture	34 students
	Design and Implementation of DSP algorithms	20 students
<u>2001/02</u>		
	Computer Architecture	46 students
	Computer Networks	60 students
	DSP architecture	45 students
<u>2002/2003</u>		
	DSP architecture	25 students
	Computer Architecture	70 students
	DSP architecture	25 students
<u>2003 Fall</u>	Sabbatical leave	
<u>2004 Spring</u>	DSP Architecture	27 students
<u>2004 Fall</u>	DSP Architecture	15 students
<u>2005 Spring</u>	DSP Architecture	15 students
	ALGORITHM ANAL&DATA STRUCTURES	30 students
<u>2005 Summer</u>	Performance of Computer Systems and Networks	15 students
<u>2005 Fall</u>	Embedded System Integration	15 students
<u>2006 Spring</u>	DSP Architecture	13 students
	Object-Oriented Programming Systems	15 students
<u>2006 Summer</u>	DSP Architecture	13 students
	Telecommunication Software Design	18 students
<u>2006 Fall</u>	DSP Architecture	20 students

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Administration and curricular development.

Program Committee of Conferences

- (1) First International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT'2000), Hong Kong, May 22-24, 2000.
- (2) IASTED International Conference on Signal Processing and Communications, Malaga, Spain, September 19-22, 2000.
- (3) Second International Conference on Parallel and Distributed Computing, Applications and Techniques (PDCAT 2001), Taipei, Taiwan, July 9-11, 2001.
- (4) IASTED International Conference on Advances in Communications Rhodes, Greece, July 3-6, 2001.
- (5) 14th International Conference on Parallel and Distributed Computing Systems, Dallas/Richardson, Texas USA, August 8-10, 2001.
- (6) Third International Conference on Parallel and Distributed Computing, Applications, and Technologies (PDCAT 2002), Kanazawa City, Japan, September 2-4, 2002.
- (7) IEEE International Symposium on Circuits and Systems, Scottsdale, Arizona, 26 May 2002 - 29 May 2002
- (8) The 2nd IASTED International Conference on Communications, Internet and Information Technology (CIIT 2003), Scottsdale, AZ, USA, November 17- November 19, 2003.

Session Chair

- (1) Second IASTED International conference on Parallel and Distributed Computing and Networks, December, 1998, Australia;
- (2) IEEE Pacific Rim Conference on Communications, Computers and Signal Processing, 1999;
- (3) Canadian Conference on Electrical and Computer Engineering, 1999, Edmonton, Canada.

Referee of

- (1) International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT'2000)

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- (2) IASTED International Conference on Signal Processing and Communications, Malaga, Spain, September 19-22, 2000.
- (3) Second International Conference on Parallel and Distributed Computing, Applications, and Techniques (PDCAT 2001), Taipei, Taiwan, July 9-11, 2001.
- (4) IASTED International Conference on Advances in Communications Rhodes, Greece, July 3-6, 2001.
- (5) 14th International Conference on Parallel and Distributed Computing Systems, Dallas/Richardson, Texas USA, August 8-10, 2001.
- (6) Third International Conference on Parallel and Distributed Computing, Applications, and Technologies (PDCAT 2002), Kanazawa City, Japan, September 2-4, 2002.
- (7) VLSI Great Lake Symposium, 2000, 20001.
- (8) International Conference on Computer Aided Design, 1997
- (9) IEEE International Symposium on Circuits and Systems, 2000, 2001, 2002
- (10) IEEE International Conference on Acoustics, Speech, and Signal Processing, 2000, 2001
- (11) IEEE SiPS conference
- (12) Applied Signal Processing
- (13) IEEE Transaction on Computers,
- (14) IEEE Trans. on Circuits and Systems,
- (15) IEEE Transactions on Signal Processing,
- (16) IEEE Signal Processing Letter,
- (17) Journal of Parallel and Distributed Computing
- (18) Encyclopedia of Electrical and Electronics Engineering, John Wiley & Sons,
- (19) International Journal on computers and electrical engineering,
- (20) Journal of circuits, systems, and computers
- (21) Journal of VLSI Signal Processing

IEEE services

IEEE Student Branch Counselor for Concordia University 1997/99.

Circuits and System Dallas Chapter Treasurer, Dallas.

Vice Chair of the Computer Society Dallas Chapter, Dallas.

Member of the Consulting Network Dallas Chapter, Dallas.

University Services

- (1) January 2000 – April 2000, Chair selection committee, Department of Computer Science, Florida Atlantic University, to select a new chair for the department.

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(2) September 2000 – now, Grad. admission and TA committee, Department of Computer Science, University of Texas at Dallas, to admit M. Sc. and Ph. D. students and to assign Teaching Assistantship to qualified students.

(3) April 2001 – now, Computer Engineering Committee, Department of Computer Science, University of Texas at Dallas, to jointly manage the computer engineering program in the college.

(4) September, 2001 – now, Faculty recruiting committee, Department of Computer Science, University of Texas at Dallas, to recruit new faculty members.

Community Service

(1) Faculty advisor for the Chinese Student Association in UT-D, September 2001

(2) Judge for Science Fair in Montreal, Canada, September 1996.

W. Eric Wong

Department of Computer Science
University of Texas at Dallas
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ewong@utdallas.edu
www.utdallas.edu/~ewong

Education

Ph.D.	Computer Science	Purdue University	December 1993
M.S.	Computer Science	Purdue University	May 1991
B.S.	Computer Science	Eastern Michigan University	August 1988

Award

1997 Quality Assurance Special Achievement Award, Johnson Space Center, NASA

Professional Experience

- Department of Computer Science, University of Texas at Dallas
 - Coordinator, Software Engineering Group August 2004 – Present
 - Tenured Associate Professor January 2002 – Present
- Texas Instruments
 - Consultant September 2004 – August 2005
- Telcordia Technologies (formerly Bellcore)
 - Senior Scientist, Information and Computer Science Research Laboratory March 1995 – January 2002
 - Project Manager, Horizon Research Program January 2002 – Present
- Hughes Network Systems
 - Member of Technical Staff, Department of Software Technology January 1994 – February 1995

Management Training

- Georgia Tech Mid-Management Certified Program in 2001
- Member, Telcordia PDP Class 2000 - a two-year leadership development program

Ongoing Research Focus

Reducing the cost of software production and improving software dependability, reliability and quality at the same time. Research interests can be divided into the following two major areas

- Program-Based Testing, Debugging, Understanding, and Analysis
- Architecture/Design-Based Testing, Debugging, Understanding, and Analysis

Please refer to my research statement for more details.

Publications

• Journals

- 1) W. E. Wong and Y. Qi, "Effective Program Debugging based on Execution Slices and Inter-Block Data Dependency," *Journal of Systems and Software*, 79(7):891-903, July 2006
- 2) L. Dai, K. Cooper, and W. E. Wong, "Modeling and Analysis of Performance Aspects for Software Architecture: A UML-Based Approach," *International Journal of Software Engineering and Knowledge Engineering*, 16(3):347-378, June 2006
- 3) A. Vincenzi, M. Delamato, J. C. Maldonado, and W. E. Wong, "Establishing Structural Testing Criteria for Java Bytecode," *Software-Practice and Experience*, 36(14):1513-1541, November 2006.
- 4) Y. Qi, D. Kung, and W. E. Wong, "An Agent-based Data-Flow Testing Approach for Web Applications," *Journal of Information and Software Technology*, 48(12):1159-1171, December 2006
- 5) D. Xu and W. E. Wong, "Aspect-Oriented Specification of Threat-Driven Security Requirements," *International Journal of Computer Applications in Technology* (accepted for publication)
- 6) W. E. Wong, T. Sugeta, Y. Qi, and J. C. Maldonado, "Smart Debugging Software Architectural Design in SDL," *Journal of Systems and Software*, 76(1):15-28, April 2005
- 7) W. E. Wong and S. Gokhale, "Static and Dynamic Distance Metrics for Feature-Based Code Analysis," *Journal of Systems and Software*, 74(3):283-295, February 2005
- 8) A. Vincenzi, J. C. Maldonado, W. E. Wong, and M. Delamato, "Coverage Testing of Java Programs and Components," *Journal of Science of Computer Programming*, 56(1-2):211-230, April 2005
- 9) F. Liu, W. Guo, W. Chou, and W. E. Wong, "An Approach of Integrating SIP in Converged Multimodal/Multimedia Communication Services," *Journal of Telecommunication Systems*, 28(3-4):387-405, March 2005
- 10) S. S. Gokhale, W. E. Wong, J. R. Horgan, and K. S. Trivedi, "An Analytical Approach to Architecture-Based Software Performance and Reliability Prediction," *Journal of Performance Evaluation*, 58(4):391-412, December 2004
- 11) J. Cangussu, K. Cooper, and W. E. Wong, "An Empirical Evaluation of a Run-Time Dynamic Adaptable Framework," *The Journal of Software Engineering*, 33(3):255-284, December 2004
- 12) W. E. Wong and J. J. Li, "Redesigning Legacy Systems into the Object-Oriented Paradigm," *International Journal of Software Engineering and Knowledge Engineering*, 14(3):255-276, June 2004
- 13) W. E. Wong, T. Sugeta, J. J. Li, and J. C. Maldonado, "Coverage Testing Software Architectural Design in SDL," *Journal of Computer Networks*, 42(3):359-374, June 2003
- 14) M. H. Chen, M. R. Lyu, and W. E. Wong, "Effect of Code Coverage on Software Reliability Measurement," *IEEE Transactions on Reliability*, 50(2):165-170, June 2001

- 15) W. E. Wong, J. R. Horgan, M. Syring, W. M. Zage, and D. M. Zage, "Applying Design Metrics to Predict Fault-Proneess: A Case Study on a Large-Scale Software System," *Software-Practice and Experience*, 30(14):1587-1608, November 2000
- 16) W. E. Wong, S. S. Gokhale, and J. R. Horgan, "Quantifying the Closeness between Program Components and Features," *Journal of Systems and Software*, 54(2):87-98, October 2000
- 17) W. E. Wong, J. R. Horgan, A. P. Mathur, and A. Pasquini, "Test Set Size Minimization and Fault Detection Effectiveness: A Case Study in a Space Application," *Journal of Systems and Software*, 48(2):79-89, October 1999
- 18) N. Wilde, R. Justice, K. Blackwell, and W. E. Wong, "Dynamic Analysis Methods for the Year 2000 Problem," *Journal of Software Maintenance*, 11(3):167-182, July 1999
- 19) H. Agrawal, J. R. Horgan, J. J. Li, W. E. Wong, etc., "Mining System Tests to Aid Software Maintenance," *IEEE Computer*, 31(7):64-73, July 1998
- 20) W. E. Wong, J. R. Horgan, S. London, and A. P. Mathur, "Effect of Test Set Minimization on Fault Detection Effectiveness," *Software-Practice and Experience*, 28(4):347-369, April 1998
- 21) W. E. Wong and A. P. Mathur, "Reducing the cost of Mutation Testing: An Empirical Study," *Journal of Systems and Software*, 31(3):185-196, December 1995
- 22) R. A. DeMillo, A. P. Mathur, and W. E. Wong, "Some Critical Remarks on a Hierarchy of Fault-Detecting Abilities of Test Methods," *IEEE Transactions on Software Engineering*, 21(10):858-861, October 1995
- 23) W. E. Wong and A. P. Mathur, "Fault Detection Effectiveness of Mutation and Data Flow Testing," *Software Quality Journal*, 4(1):69-83, March 1995
- 24) A. P. Mathur and W. E. Wong, "An Empirical Comparison of Data Flow and Mutation Based Test Adequacy Criteria," *Journal of Software Testing, Verification, and Reliability*, 4(1):9-31, March 1994

• Book Chapters

- 1) W. E. Wong and J. J. Li, "Use of Visualization to Aid Object-Oriented Redesign," in *Software Visualization - From Theory to Practice* (Ed. K. Zhang), Kluwer Academic Publishers, pp. 389-412, June 2003
- 2) A. Vincenzi, J. Maldonado, M. Delamato, E. Spoto and W. E. Wong, "Component-Based Software: An Overview of Testing," in *Component-Based Software Quality: Methods and Techniques* (Ed. A. Cechich), (part of the Lecture Notes in Computer Science by Springer-Verlag), Volume 2693, pp. 158-187, June 2003

• PhD Dissertation

- W. E. Wong, "On Mutation and Data Flow," SERC-TR-149-P, Purdue University, West Lafayette, Indiana, December 1993

• **Refereed Conference and Workshop Papers**

◦ **Year 2006**

- 1) **W. E. Wong**, S. Rao, J. Linn, and J. Overturn, "Coverage Testing Embedded Software on Symbian/OMAP," in *Proceedings of The 18th International Conference on Software Engineering and Knowledge Engineering* (SEKE 06), San Francisco, California, July, 2006.
- 2) **W. E. Wong**, J. Zhao, and V. Chan, "Applying Statistical Methodology to Optimize and Simplify Software Metric Models with Missing Data," in *Proceedings of The 21st ACM Symposium on Applied Computing* (ACM SAC 06), Dijon, France, April 2006
- 3) J. Cangussu, K. Cooper, and **W. E. Wong**, "Multi Criteria Selection of Components using the Analytic Hierarchy Process," in *Proceedings of The 9th International Symposium on Component-Based Software Engineering* (CBSE 06), Stockholm, Sweden, June 2006
- 4) F. Belli, C. J. Budnik and **W. E. Wong**, "Basic Operations for Generating Behavioral Mutants," in *Proceedings of the 2nd Workshop on Mutation Analysis* (Mutation 06), Raleigh, North Carolina, November 2006
- 5) K. Y. Cai, C. H. Jiang, **W. E. Wong**, and H. Hu, "Improving Software Reliability Assessment using Adaptive Testing," in *Proceedings of The 1st IEEE International Conference on System Integration and Reliability Improvements* (SIRI 06), Hanoi, Vietnam, December 2006
- 6) K. Y. Cai, Y. C. Li, W. Y. Ning, **W. E. Wong**, and H. Hu, "Optimal and Adaptive Testing with Cost Constraints," in *Proceedings of the 1st Workshop on Automation of Software Testing*, Shanghai, China, May 2006 (co-located with ICSE 2006)
- 7) J. Dong, S. Yang, Y. Sun, and **W. E. Wong**, "QVT-based Model Transformation for Design Pattern Evolutions," in *Proceedings of the 10th IASTED International Conference on Internet and Multimedia Systems and Applications* (ISMA 06), Hawaii, USA, August 2006
- 8) V. Chan and **W. E. Wong**, "Outlier Elimination in Construction of Software Metric Models," in *Proceedings of The 22nd ACM Symposium on Applied Computing* (ACM SAC 07), Seoul, Korea, March 2007 (to appear)
- 9) L. Wang, **W. E. Wong**, and D. Xu, "A Threat Model Driven Approach for Security Testing," in *Proceedings of the 3rd IEEE International Workshop on Software Engineering for Secure Systems* (SESS 2007) (in conjunction with ICSE 2007), Minneapolis, Minnesota, May 2007 (to appear)
- 10) K. Cooper, **W. E. Wong**, and D. Simmons "Revitalizing Software Engineering Education in the 21st Century," in *Proceedings of 2007 International Conference on Software Engineering Theory and Practice*, Orlando, Florida, July 2007 (to appear)

◦ **Year 2005**

- 11) **W. E. Wong**, Y. Lei, and X. Ma, "Effective Generation of Test Sequences for Structural Testing of Concurrent Programs," in *Proceedings of The 10th IEEE*

- International Conference on Engineering of Complex Computer Systems* (ICECCS), Shanghai, China, June 2005
- 12) **W. E. Wong**, Y. Qi, and K. Cooper, "Source Code-Based Software Risk Assessing," in *Proceedings of The 20th ACM Symposium on Applied Computing* (ACM SAC), Santa Fe, New Mexico, March 2005
- 13) Y. Lei and **W. E. Wong**, "A Novel Framework for Non-deterministic Testing of Message-Passing Programs," in *Proceedings of The 9th IEEE International Symposium on High Assurance Systems Engineering* (HASE), Heidelberg, Germany, October 2005
- 14) **W. E. Wong** and J. J. Li, "An Integrated Solution for Testing and Analyzing Java Applications in an Industrial Setting," in *Proceedings of The 12th IEEE Asia-Pacific Software Engineering Conference* (APSEC), Taipei, Taiwan, December 2005
- 15) J. J. Li and **W. E. Wong**, X. Ma, and D. Weiss, "A Constraint Solver for Code-Based Test Data Generation," in *Proceedings of The 17th International Conference on Software Engineering and Knowledge Engineering* (SEKE), Taipei, Taiwan, July 2005
- 16) G. Sharmuganathan, K. Zhang, **W. E. Wong**, and Y. Qi, "Analyzing Message-Passing Programs through Visual Slicing," in *Proceedings of IEEE International Conference on Information Technology* (ITCC), Las Vegas, Nevada, April 2005
- 17) K. Cooper, J. Cangussu, R. Lin, S. Ganesan, R. Soundararajane, and **W. E. Wong**, "An Empirical Study on the Specification of Components Using Fuzzy Logic," in *Proceedings of The 8th International SIGSOFT Symposium on Component-based Software Engineering* (CBSE), St. Louis, Missouri, May 2005, (Lecture Notes in Computer Science by Springer, Volume 3489, pp. 135-170)
- 18) V. Chan and **W. E. Wong**, "Optimizing and Simplifying Software Metric Models Constructed Using Maximum Likelihood Methods," in *Proceedings of The 29th IEEE International Computer Software and Applications Conference* (COMPSAC), Edinburgh, Scotland, July 2005
- 19) H. Hu, **W. E. Wong**, C. H. Jiang, and K. Y. Cai, "A Case Study of the Recursive Least Squares Estimation Approach to Adaptive Testing for Software Components," in *Proceedings of The 5th International Conference on Quality Software* (QSIC), Melbourne, Australia, September 2005
- 20) L. Dai, K. Cooper, and **W. E. Wong**, "Modeling Reusable Security Aspects for Software Architecture: a Pattern Driven Approach," in *Proceedings of The 17th International Conference on Software Engineering and Knowledge Engineering* (SEKE), Taipei, Taiwan, July 2005
- 21) Y. Qi, D. Kung, and **W. E. Wong**, "An Agent-Based Testing Approach for Web Applications," in *Proceedings of The 2nd International Workshop on Quality Assurance and Testing of Web-Based Applications* (co-located with COMPSAC 2005), Edinburgh, Scotland, July 2005
- 22) J. Cangussu, K. Cooper, **W. E. Wong** and X. Ma, "A Run-Time Adaptable Persistence Service using the SMART Framework," in *Proceedings of The 38th Hawaii International Conference on System Sciences* (HICSS), Hawaii, USA, January 2005

- 23) T. Sugata, J. C. Maldonado, and W. E. Wong, "Structural and Mutation Testing for SDL Specifications: A Case Study," in *Proceedings of The 6th IEEE Latin-American Test Workshop (LATW)*, Salvador, Bahia, Brazil, March 2005

o Year 2004

- 24) W. E. Wong and Y. Qi, "An Execution Slice and Inter-Block Data Dependency-based Approach for Fault Localization," in *Proceedings of The 17th IEEE Asia-Pacific Software Engineering Conference (APSEC)*, Busan, Korea, December 2004
- 25) W. E. Wong and Y. Qi, "Visualizing Software Architecture: a Code Driven Approach," in *Proceedings of International Workshop on Visual Languages and Computing*, San Francisco, California, September 2004
- 26) T. Sugata, J. C. Maldonado, and W. E. Wong, "Mutation Testing Applied to Validate SDL Specifications," in *Proceedings of The 16th IFIP International Conference on Testing of Communicating Systems (TestCom)*, Oxford, United Kingdom, March 2004
- 27) W. E. Wong, X. Ma, and K. Cooper, "AGES: Automatic Generation of EFSMs from SDL Specifications," in *Proceedings of The 10th ISSAT International Conference on Reliability and Quality in Design*, Las Vegas, Nevada, August 2004
- 28) J. J. Li, W. E. Wong, and W. Guo, "Case Study of a Multimedia Wireless System," in *Proceedings of IEEE International Conference on Multimedia and Expo (ICME)*, Taipei, Taiwan, June 2004

o Year 2003

- 29) W. E. Wong, T. Sugata, Y. Qi, and J. C. Maldonado, "Smart Debugging Software Architectural Design in SDL," in *Proceedings The 27th IEEE International Computer Software and Applications Conference (COMPSAC)*, Dallas, Texas, November 2003
- 30) W. E. Wong and J. J. Li, "Redesigning Legacy Systems into the Object-Oriented Paradigm," in *Proceedings The 6th IEEE International Symposium on Object-Oriented Real-Time Distributed Computing (ISORC)*, Hakodate, Hokkaido, Japan, May 2003
- 31) A. Vincenzi, W. E. Wong, M. Delamaro and J. C. Maldonado, "JaBUTi: A Coverage Analysis Tool for Java Programs," in *Proceedings of The 17th Brazilian Symposium on Software Engineering (SBES)*, Manaus, AM, Brazil, October 2003
- 32) F. Liu, W. Guo, W. Chou, and W. E. Wong, "An Approach of Integrating SIP in Converged Multimodal/Multimedia Communication Services," in *Proceedings of The 12th IEEE International Conference on Computer Communications and Networks (ICCCN)*, Dallas, Texas, October 2003
- 33) J. J. Li, W. Chou, X. Shan, F. Liu, and W. E. Wong, "An Adaptable Architecture for Secure Delivery of Converged Services," in *Proceedings of The 6th IEEE*

- International Symposium on Autonomous Decentralized Systems (ISADS)*, Pisa, Italy, April 2003
- 34) M. Wu, W. E. Wong, and J. J. Li, "Performance Evaluation of Predictive Handoff Scheme with Channel Borrowing," in *Proceedings of The 22nd IEEE International Performance, Computing, and Communications Conference (IPCCC)*, Phoenix, Arizona, April 2003

- 35) A. Vincenzi, M. Delamaro, J. C. Maldonado, and W. E. Wong, "Java Bytecode Static Analysis: Deriving Structural Testing Requirements," in *Proceedings of The 2nd UK Testing Research Workshop*, York, United Kingdom, September 2003

o Year 2002

- 36) W. E. Wong, S. S. Gokhale, and J. R. Horgan, "Measuring Distance between Program Features," in *Proceedings of The 26th IEEE International Computer Software and Applications Conference (COMPSAC)*, Oxford, England, August 2002
- 37) J. J. Li and W. E. Wong, "Automatic Test Generation from Communicating Extended Finite State Machine (CEFSM)-Based Models," in *Proceedings of The 5th IEEE International Symposium on Object-Oriented Real-Time Distributed Computing (ISORC)*, Washington, D.C., April 2002
- 38) P. Vilela, M. Machado, and W. E. Wong, "Testing for Security Vulnerabilities in Software," in *Proceedings of The 6th IASTED International Conference on Software Engineering and Applications (SEA)*, Cambridge, Massachusetts, November 2002
- 39) A. Vincenzi, M. Delamaro, J. Maldonado, and W. E. Wong, "JaBA: A Java Bytecode Analyzer," in *Proceedings of The 16th Brazilian Symposium on Software Engineering (SBES)*, Gramado, RS, Brazil, October 2002

o Selected Conference Papers Before 2002 (a complete list is available upon request)

- 40) J. J. Li, D. Mulcare and W. E. Wong, "Dependability of Complex Software Systems With Component Upgrading," in *Proceedings of The 24th IEEE International Computer Software and Applications Conference (COMPSAC)*, Taiwan, October 2000
- 41) W. E. Wong, D. Mulcare, P. Vilela and J. J. Li, "Constructing Network Models from Workflows," in *Proceedings of The 10th IEEE International Conference on Computer Communications and Networks (ICCCN)*, Phoenix, Arizona, October 2001
- 42) W. E. Wong, "An Integrated Solution for Creating Dependable Software," in *Proceedings of The 24th IEEE International Computer Software and Applications Conference (COMPSAC)*, Taiwan, October 2000
- 43) Y. H. Lee, W. E. Wong, and A. Lee, "A Toolsuite for Testing Real-Time Ada Applications," in *Proceedings of The 3rd IEEE Symposium on Application-Specific Systems and Software Engineering Technology (ASSET)*, Richardson, Texas, March 2000

- 44) W. E. Wong, S. S. Gokhale, J. R. Horgan, and K. S. Trivedi, "Locating Program Features using Execution Slices," in *Proceedings of The 2nd IEEE Symposium on Application-Specific Systems and Software Engineering Technology (ASSET)*, Richardson, Texas, March, 1999
- 45) W. E. Wong, J. R. Horgan, J. C. Maldonado, and J. V. LaGrange, "Integrating Testing and Design Metrics to Predict Fault-Prone Software Modules," in *Proceedings of International Conference on Software Engineering & its Applications (ICSEA)*, Paris, France, December, 1998
- 46) M. Yang, W. E. Wong, and A. Pasquini, "Applying Testability to Reliability Estimation," in *Proceedings of The 9th IEEE International Symposium on Software Reliability Engineering (ISSRE)*, Paderborn, Germany, November 1998
- 47) S. S. Gokhale, W. E. Wong, K. S. Trivedi, and J. R. Horgan, "An Analytical Approach to Architecture-Based Software Reliability Prediction," in *Proceedings of The 3rd IEEE International Computer Performance and Dependability Symposium (IPDS)*, Durham, NC, September 1998
- 48) W. E. Wong, J. R. Horgan, S. London, and H. Agrawal, "A Study of Effective Regression Testing in Practice," in *Proceedings of The 8th IEEE International Symposium on Software Reliability Engineering (ISSRE)*, Albuquerque, New Mexico, November 1997
- 49) J. A. Morgan, G. J. Knaf, and W. E. Wong, "Predicting Fault Detection Effectiveness," in *Proceedings of The 4th IEEE International Software Metrics Symposium (METRICS)*, Albuquerque, New Mexico, November 1997
- 50) W. E. Wong, J. R. Horgan, A. P. Mathur, and A. Pasquini, "Test Set Size Minimization and Fault Detection Effectiveness: A Case Study in a Space Application," in *Proceedings of The 21st IEEE International Computer Software and Applications Conference (COMPSAC)*, Washington D. C., August 1997
- 51) S. Ghosh, J. R. Horgan, J. J. Li, and W. E. Wong, "Software Fault Injection Testing on a Distributed System - A Case Study," in *Proceedings of International Quality Week Europe, Brussels, Belgium, November 1997*
- 52) M. H. Chen, M. R. Lyu, and W. E. Wong, "Incorporating Code Coverage in the Reliability Estimation for Fault-Tolerant Software," in *Proceedings of The 16th IEEE Symposium on Reliable Distributed Systems (SRDS)*, Durham, NC, October 1997
- 53) W. E. Wong, J. C. Maldonado, M. E. Delamaro, and S. Souza, "Use of Proteum to Accelerate Mutation Testing in C Programs," in *Proceedings of The 3rd ISSAT International Conference on Reliability and Quality in Design*, Anaheim, California, March 1997
- 54) M. H. Chen, M. R. Lyu, and W. E. Wong, "An Empirical Study of the Correlation between Code Coverage and Reliability Estimation," in *Proceedings of The 3rd IEEE International Software Metrics Symposium (METRICS)*, Berlin, Germany, March 1996
- 55) S. Fabbri, J. C. Maldonado, P. C. Masiero, M. E. Delamaro, and W. E. Wong, "Mutation Analysis Applied to Validate Specifications based on Petri Nets," in *Proceedings of The 8th International Conference on Formal Description Techniques (FORTE)*, Montreal, Canada, October 1995

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- 56) H. Agrawal, J. R. Horgan, S. London, and W. E. Wong, "Fault Localization using Execution Slices and Dataflow Tests," in *Proceedings of The 6th IEEE International Symposium on Software Reliability Engineering (ISSRE)*, Toulouse, France, October 1995
- 57) W. E. Wong, J. R. Horgan, S. London, and A. P. Mathur, "Effect of Test Set Minimization on Fault Detection Effectiveness," in *Proceedings of The 17th IEEE International Conference on Software Engineering (ICSE)*, Seattle, WA, April 1995
- 58) A. P. Mathur and W. E. Wong, "A Theoretical Comparison between Mutation and Data Flow Based Test Adequacy Criteria," in *Proceedings of The 22nd Annual ACM Computer Science Conference*, Phoenix, AZ, March 1994
- 59) W. E. Wong, J. R. Horgan, S. London, and A. P. Mathur, "Effect of Test Set Size and Block Coverage on Fault Detection Effectiveness," in *Proceedings of The 5th IEEE International Symposium on Software Reliability Engineering (ISSRE)*, Monterey, CA, November 1994
- 60) A. P. Mathur and W. E. Wong, "An Empirical Evaluation of the Difficulty of Satisfying Mutation and Dataflow-Based Test Adequacy Criteria," in *Proceedings of the 3rd Software Engineering Research Forum*, Orlando, FL, November 1993
- 61) W. E. Wong and A. P. Mathur, "How Strong is Constrained Mutation in Fault Detection?" in *Proceedings of International Computer Symposium*, Taipei, Taiwan, December 1994
- 62) W. E. Wong, A. P. Mathur, and J. C. Maldonado, "Mutation versus All-uses: An Empirical Evaluation of Cost, Strength, and Effectiveness," in *Proceedings of International Conference on Software Quality and Productivity*, Hong Kong, December 1994
- 63) W. E. Wong, J. C. Maldonado, M. E. Delamaro, and A. P. Mathur, "Constrained Mutation in C Programs," in *Proceedings of the 8th Brazilian Symposium on Software Engineering (SBES)*, Curitiba, Brazil, October 1994
- 64) A. P. Mathur and W. E. Wong, "Evaluation of the Cost of Alternate Mutation Testing Strategies," in *Proceedings of the 7th Brazilian Symposium on Software Engineering (SBES)*, Rio de Janeiro, Brazil, October 1993

Research Grants since 2002

NASA	\$1130K	Texas Instruments [†]	\$80K
Avaya Research Labs	\$178K	ETRI	\$22.5K
QUEST	\$10K	IBM/Institute of Software Engineers	\$170K
ITRC	\$220K	Macao High Tech Foundation	\$30K
Long Capital International	\$40K	UTD Matching Fund	\$273K
Sun Microsystems	\$43,540		

[†]Including Professor Eric Wong's consulting

*The Academic Equipment Grant Program

- 1) Testing for Software Safety, PI: W. E. Wong, Co-PI: Y. H. Lee (Arizona State University) and D. Xu (North Dakota State University), NASA, \$407.5K, 01/01/2007-12/31/2009

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- 2) A Testing Framework for Reproducible Execution and Race Condition Detection in Real-Time Embedded Systems, Co-PI: **W. E. Wong**, PI: **Y. H. Lee** (Arizona State University), NASA, \$555K, 01/01/2005-12/31/2007
- 3) Timing and Race Condition Verification of Real-Time Systems, PI: **Y. H. Lee** (Arizona State University), Co-PI: **W. E. Wong**, G. Gannod (Arizona State University) and K. Chatha (Arizona State University), NASA, \$125,164, 01/01/2003-12/31/2003
- 4) "Engineering Education Process Improvement Research," PI: **W. E. Wong**, co-PI: D. Simmons, IBM/The Institute of Software Engineers, \$170K, 01/01/2007 to 12/31/2007
- 5) "A Framework for Optimizing Software Metrics Models Constructed Using Maximum Likelihood Methods," PI: V. Chan (Macao Polytechnic Institute), co-PI: **W. E. Wong**, Macao High Tech Foundation sponsored by Macao Government, \$30K, 07/01/2005-06/30/2008.
- 6) A Framework for Quantitative Evaluation of Software Testing Process, Co-PI: **W. E. Wong**, PI: B. Choi (Ewha Woman's University, Seoul, Korea), Information Technology Research Center (ITRC) sponsored by the Korean Government, \$220K, 09/01/2006-08/31/2010
- 7) "An Agent-based Testing Approach for Web Applications," PI: **W. E. Wong**, Long Capital International, \$40K, 07/17/2006-08/31/2007
- 8) Software Analysis to aid in Probabilistic Risk Assessment, PI: **W. E. Wong**, Johnson Space Center, NASA, \$43K, 08/01/2003-07/31/2004
- 9) A Framework for Measuring and Improving Code Coverage for Embedded Software, PI: **W. E. Wong**, Texas Instruments, \$40K, 10/01/2004-08/31/2005
- 10) Improving Software Quality by Effective Analysis of Defects, PI: **W. E. Wong**, Texas Instruments, \$40K, 10/01/2004-08/31/2005
- 11) Visual-Aid Novel Testing for Software Applications in C/C++ and Java, PI: **W. E. Wong**, Avaya Research Labs, \$85K, 06/01/2004-05/31/2006
- 12) Service Oriented Architecture for Converged Communication, PI: **W. E. Wong**, Avaya Research Labs, \$58K, 09/10/2004-01/31/2006
- 13) Service Broker Architecture for SIP-based Multimodal Applications, PI: **W. E. Wong**, Avaya Research Labs, \$35K, 10/01/2002-06/30/2003
- 14) Software Product Line Architecture: A Formal Evaluation Model, PI: **W. E. Wong**, Electronics and Telecommunications Research Institute (ETRI), \$22,500
- 15) Orthogonal Defect Classification for Analyzing Software Defects, PI: **W. E. Wong**, QUEST (Quality Excellence for Suppliers of Telecommunications Forum), \$10K, 07/01/2004-12/31/2004
- 16) Modeling Security Aspects in Software Architectures, PI: **W. E. Wong**, University of Texas at Dallas, \$90K
- 17) Software Risk Assessment: Source Code-based Models, PI: **W. E. Wong**, University of Texas at Dallas, \$95K
- 18) The Academic Equipment Grant Program, PI: **W. E. Wong**, Sun Microsystems, \$43,540

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Teaching

- **Graduate Courses**
 - CS6354: Advanced Software Engineering
 - CS5354: Software Engineering
 - CS5333: Discrete Structures
- **Undergraduate Courses**
 - SE4367: Software Testing and Verification
 - SE4485: Software Engineering Project
 - SE2370: Mathematical Foundation for Software Engineering
 - CS3305: Discrete Math for Computing II
- **Selected Tutorials**
 - *Tool Development for Cost Effective Software Testing and Maintenance*
Chinese Software Industry Association, Beijing, China
July 7-8, 2006
 - *Effective Software Testing in Practice*
Johnson Space Center, NASA, Houston, Texas
May 13-14, 2002
 - *A Quantitative Risk Assessment Model For Software Quality, Testing and Safety*
Quality Week Europe, Brussels, Belgium
November 2000

Advising and Mentoring

- **Ph.D. Advising:**
 - Yu Qi (4th year), Hyotae Jung (3rd year), Duk-in Kim (1st year), Andy Restrepo (1st year), and Yan Shi (1st year)
- **M.S. Advising:**
 - Sachin Powar 12/03 (Graduated)
 - Kanesh Kulkarni 08/04 (Graduated)
 - Vasanth Velusamy 08/05 (Graduated)
 - Sharath Rao 12/05 (Graduated)
 - Smitha Thota 12/05 (Graduated)
 - David Tang 12/05 (Graduated)
- **Post-Doctor/Visiting Scholar Mentoring:**
 - Mr. Lei Zhao (Beijing University of Aeronautics and Astronautics) 07/06 – 06/07
 - Research topic: Applying Software Cybernetics to Program Testing and Debugging
 - Dr. Linzhang Wang (Nanjing University) 03/05 – 02/06

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Research topic: Model Driven Software Testing

o Dr. Jing Zhao (Nanjing University) 05/05 – 12/05

Research topic: Statistical Modeling for Software Risk Assessment

Recent Professional Activities

- **Journal Guest Editor**

- o A special issue of the Software Quality Journal (SQJ) on *Emerging Technologies for Improving Software Quality* (in preparation)
- o A special issue of the Journal of Systems and Software (JSS) on *Model-Based Software Testing* (in preparation)
- o A special issue of the International Journal of Software Engineering and Knowledge Engineering (IUSEKE) for The Seventeenth International Conference on Software Engineering and Knowledge Engineering (in preparation)
- o A special issue of the Journal of Software Practice and Experience (SPE) on *Developing Trustworthy Software Systems*, Volume 36, Issue 9, July 2006
- o A special issue of the International Journal of Software Engineering and Knowledge Engineering (IUSEKE) on *Aspect-Oriented Software Design*, Volume 16, Number 3, June 2006
- o A special issue of the Journal of Software Practice and Experience (SPE) on *Enhancing Network Applications*, Volume 33, Issue 14, November 2003
- o A special issue of the Journal of Software Testing, Verification, and Reliability (STVR) on *Mutation testing*, Volume 11, Issue 4, December 2001

- **Journal Reviewer**

- o IEEE Transactions on Software Engineering
- o IEEE Software
- o ACM Transactions on Software Engineering and Methodology
- o The Computer Journal
- o ACM Computing Surveys
- o Software Practice and Experience
- o Journal of Systems and Software
- o Software Quality Journal
- o Journal of Software Testing, Verification, and Reliability
- o Journal of Information and Software Technology
- o Communications of the ACM
- o Empirical Software Engineering
- o International Journal of Software Engineering and Knowledge Engineering
- o Software and System Modeling
- o International Journal of Web Services Research
- o Reliability Engineering & System Safety
- o Information Processing Letters
- o Journal of the Brazilian Computer Society
- o International Journal of Simulation and Process Modeling
- o International Journal of General Systems

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- **General Chair**

- o ICCCN 2003 - The 12th IEEE International Conference on Computer Communications and Networks, Dallas, Texas, October 20-22, 2003

- **Program Chair**

- o QSIC 2007 - The 7th International Conference on Quality Software, Portland, Oregon, October 11-12, 2007
- o ACM SAC-SE 2007 - The 22nd Annual ACM Symposium on Applied Computing: Software Engineering Track (SE), Seoul, Korea, March 11 - 15, 2007
- o AST 2007 - The IEEE Second International Workshop on Automation of Software Test (in conjunction with The 29th International Conference on Software Engineering (ICSE 2007), Minneapolis, Minnesota, May 20-26, 2007)
- o IWSC 2006 - The 3rd International Workshop on Software Cybernetics, Chicago, Illinois, September 18-21, 2006
- o SIRI 2006 - The 1st IEEE International Conference on System Integration and Reliability Improvements, Hanoi, Vietnam, December 13-15, 2006
- o Mutation 2006 - The 2nd Mutation Analysis Workshop, Raleigh, North Carolina, November 6-10, 2006
- o ISSRE 2005 - The 16th IEEE International Symposium on Software Reliability Engineering, Chicago, Illinois, November 8-11, 2005
- o SEKE 2005 - The 17th International Conference on Software Engineering and Knowledge Engineering, Taipei, Taiwan, July 14-16, 2005
- o TQACBS 2005 - The 2nd International Workshop on Testing and Quality Assurance for Component-Based Systems (in Conjunction with COMPSAC 2005), Edinburgh, Scotland, July 26-28, 2005
- o COMPSAC 2004 - The 28th IEEE International Computer Software and Applications Conference, Hong Kong, September 28-30, 2004
- o ICCCN 2002 - The 11th IEEE International Conference on Computer Communications and Networks, Miami, Florida, October 14-16, 2002
- o Mutation 2000 - A Symposium on Mutation Testing in the Twentieth and the Twenty-First Centuries, San Jose, California, October 6-7, 2000

- **Steering Committee Member**

- o IEEE International Computer Software and Applications Conference (COMPSAC)

- **Program Committee Member**

- o IEEE International Symposium on Software Reliability Engineering (ISSRE)
- o IEEE International Computer Software and Applications Conference (COMPSAC)
- o ACM Annual Symposium on Applied Computing (ACM SAC - SE Track)
- o IEEE International Conference on Engineering of Complex Computer Systems (ICECCS)
- o IEEE International Conference on Information Reuse and Integration (IRI)

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- International Conference on Quality Software (QSIC)
- IEEE International Symposium on Autonomous Decentralized Systems (ISADS)
- International Conference on Computer Safety, Reliability and Security (SAFECOMP)
- International Conference on Software Engineering and Knowledge Engineering (SEKE)
- ISSAT International Conference on Reliability and Quality in Design
- IEEE Asia-Pacific Software Engineering Conference (APSEC)
- Brazilian Symposium on Software Engineering (SBES)
- IEEE International Conference on Computer Communications and Networks (ICCCN)
- International Conference on Embedded Software and Systems (ICCESS)

• **Invited Talks**

- *Identify Fault-Prone Software Modules in Telecommunications Systems*
Motorola's 2006 System, Software and Simulation Symposium
Chicago, Illinois, September 2006
- *Coverage Testing and Debugging Your SDL Design Specifications in a Cost Effective Way*
Software and System Engineering Research Laboratory, Motorola
Chicago, Illinois, October 2006
- *eXtreme: An Integrated Solution for Dependable Software Development*
Avaya Labs Research
Basking Ridge, New Jersey, February 2006
- *Testing and Maintaining Your Software in a More Cost-Effective Way*
Peking University, Beijing, China, July 2006
- Soochow University, Soochow, China, May 2006
- Nanjing University of Posts and Telecommunications, Nanjing, China, May 2006
- Southern Yangtze University, China, May 2006
- Macao Polytechnic Institute, Macao, November 2006
- *Testing and Diagnosis of Software Architectural Design*
Department of Computer Science
North Dakota State University
Fargo, North Dakota, September 2005
- Institute of Software
Chinese Academy of Sciences
Beijing, China, June 2005
- Department of Computer Science
Nanjing University
Nanjing, China, June 2005
- Department of Computer Science
Korea Advanced Institute of Science and Technology (KAIST)
Daejeon, Korea, December 2004

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- International Institute for Software Technology
United Nations University (UNU-IIST)
Macau, October 2004
- *Improving Software Quality by Effective Analysis of Defects*
Texas Instruments
Dallas, Texas, March 2004
- *An Integrated Solution for Creating Dependable Software*
Department of Automatic Control
Beijing University of Aeronautics and Astronautics
Beijing, China, June 2005
- Department of Computer Science and Engineering,
Southeast University
Nanjing, China, June 2005
- Department of Computer Science
National University of Defense Technology
Changsha, China, June 2005
- General Dynamics
Groton, Connecticut, October 2001
- Electronics and Telecommunications Research Institute (ETRI)
Daejeon, Korea, June 2001
- US-East Asia Workshop on Engineering Systems and Applications
(funded by US National Science Foundation)
Ho-Chi-Min City, Vietnam, April 2000
- Telecommunication Laboratory
Chunghwa Telecom
Taipei, Taiwan, April 2000
- Computer & Communications Research Laboratory (CCL)
Industrial Technology Research Institute (ITRI)
Hsing-Chu, Taiwan, April 2000
- *A Solution for Diagnosis and Testing of Software Design Specifications*
Telelogic Americas 2002 User Group Conference
Las Vegas, Nevada, October 2002
- *Architectural Design-Based Assessment and Diagnosis*
Department of Computer Science
University of Texas at Arlington
Arlington, Texas, October 2002
- *Efficient Software Testing*
International Institute for Software Technology
United Nations University (UNU-IIST)
Macau, October 2000
- *Program-Based Testing, Debugging, and Maintenance*
Computer Science & Engineering Department
The Chinese University of Hong Kong
Hong Kong, April 2000

15

1. Name, current academic rank, and tenure status:

Weili (Lily) Wu
Assistant Professor
Tenure tracked

2. Date of original appointment to this faculty, followed by dates and ranks of advancement:

8/2002-Present, Assistant Professor, Dept of Computer Science, University of Texas at Dallas, TX
9/1996-8/2002, RA and TA, Dept of Computer Science, University of Minnesota, MN
1/1994-9/1995, TA and RA, Dept of Economics, University of Wisconsin, WI
7/1989-12/1993, Associate Researcher, China Coal Research Academic, Taiyuan, Shanxi, China

3. Degrees with fields, institutions, and dates

Degree	Field	Institution	Date
Pb. D.	Computer Science and Engineering	University of Minnesota	May 2002
M.S.	Computer Science and Engineering	University of Minnesota	Dec. 1998
M.S.	Economics	University of Wisconsin	Dec. 1995
B.S.	Mechanical Engineering	Liaoning Technical University, China	July 1998

4. If you do not have a formal degree in computer science, describe any course work you may have taken, or other ways in which you have achieved competence in computer science; there is no necessity to repeat information here which is contained in later sections of this document.

5. Conferences, workshops, and professional development programs in which you have participated to improve teaching and professional competence in computer science:

In editorial board of International Journal of Bioinformatics Research and Applications (IJBRA).
In editorial board of International Journal of Knowledge and Information Systems (KAIS).

Program/Advisory committee member of the following conferences:

- The Fifth IEEE International Conference on Machine Learning and Applications (ICMLA, 2006).

- The International Symposium on Bioinformatics Research and Applications (ISBRA 2007).
- International Wireless Communications and Mobile Computing Conference (IWCMC 2006).
- International Workshop on Research Challenges in Security and Privacy for Mobile and Wireless Networks (WSPWN 06).
- International Conference on Mobile Ad-hoc and Sensor Networks (MSN) (Dec. 2005).
- Systems Analysis, Data Mining and Optimization in Biomedicine, Gainesville, FL, Feb. 2005.
- ACM International Conference on Geographic Information Systems (2004)
- International Conference on Database Systems for Advanced Applications (DASFAA 2005)
- IEEE Annual Conference on Computer Communications (INFOCOM 2005)
- International Conference on Data Mining in Biomedicine(ICDMB 2005)
- The 8th Joint Conference on Information Sciences (JCIS 2005)
- IEEE Annual International Computer Software and Applications Conference (COMPSAC 2004)

Refereed for the following Conferences:

- IEEE International Conference on Machine Learning and Applications (ICMLA)
- International Symposium on Bioinformatics Research and Applications (ISBRA)
- ACM International Conference on Geographic Information Systems (ACM/GIS).
- International Conference on Mobile Ad-hoc and Sensor Networks (MSN) (Dec. 2005).
- International Wireless Communications and Mobile Computing Conference (IWCMCC 2006).
- International Conference on Database Systems for Advanced Applications (DASFAA)
- IEEE Annual Conference on Computer Communications (INFOCOM)
- IEEE Annual International Computer Software and Applications Conference (COMPSAC).
- The 8th Joint Conference on Information Sciences (JCIS 2005).
- International Conference on Data Mining in Biomedicine(ICDMB 2005).

6. Other related computing experience including teaching, industrial, governmental, etc. (Where, when, description and scope of duties):

- Ph.D. program in Geospatial Information Sciences (GIS) of UT-Dallas, 2003-2004.
- Served on NSF panelist to review CRI IIS Database Panel proposals, 2005.
- Served on NSF panelist to review ITR proposals of SEIII (Science and Engineering Information Integration and Informatics) program, 2004

- Served on NSF panelist to review ITR proposal of IIS program, 2004
- Served on NSF panelist to review wireless and sensor proposals of IDM (Information and Data Management) program, 2004, NSF (National Science Foundation).
- Served on NSF panelist to review proposals of CISE CRI (Computing Research Infrastructure), 2004, NSF (National Science Foundation).
- Served on NSF panel to review proposals of CISE Research Resources program, 2004, NSF (National Science Foundation).
- Ad-hoc reviewer for ITR proposal, 2004, NSF (National Science Foundation).
- Served on NSF panel to review proposals of sensor networks of CISE IIS program, 2003, NSF (National Science Foundation).
- Served on NSF panel to review ITR Medium proposals of CISE, 2003, NSF (National Science Foundation).
- Served on NSF panel to review proposals of IIS sensor program, 2003, NSF (National Science Foundation).
- Ad-hoc reviewer for NSF sensor proposals, 2003, NSF (National Science Foundation).
- External reviewer for IEEE transaction on Knowledge and Data Engineering (TKDE), ACM Conference on Information and Knowledge management (CIKM), International Journal of Bioinformatics Research and Applications (IJBR), International Journal of Knowledge and Information Systems (KAIS), Discrete Applied Mathematics (DAM), IEEE International Conference on Data Mining (ICDM), International Journal of Information Technology and Decision Making (IT&DM), Journal of Parallel and Distributed Computing (JPDC), Journal of Geographic Information and Decision Analysis (GIDA), International Journal of Software Engineering & Knowledge Engineering (IUSEKE), Journal of Theoretical Computer Science (TCSA), Journal of Computer Science and Technology (JCST), Journal of Information Sciences (INS), ACM International Conference on Geographic Information Systems (ACM-GIS), International Conference on Database Systems for Advanced Applications (DASFAA), IEEE Annual Conference on Computer Communications (INFOCOM), etc.
- 7. Consulting—list agencies and dates, and briefly describe each project:
- 8. Department, college, and/or university committees of which you are a member: Department of Computer Science Graduate Admission Committee.
- 9. Principal publications of the last five years. Give in standard bibliographic format.

Journal Publications

1. Wei Li, H. Gao, J. Li, and Y. Li, "New Algorithm for Computing Cube on Very Large Compressed Datasets," *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 18(12): 1667-1680 (2006).
2. Wei Li, Xiuzhen Cheng, Min Ding, Kai Xing, and Ping Deng, "Localized Outlying and Boundary Data Detection in Sensor Networks,

- to appear in *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2007.
3. Wei Li, Wei Zhang, Jianzhong Li, and Yaochun Huang, "Adaptive Monitoring of Continuous Nearest Neighbor Query over Moving Objects," Submitted to *IEEE Transactions on Knowledge and Data Engineering*, Feb. 2007.
4. Yaochun Huang, Hui Xiong, and Wei Li, "Mining Maximal Hyperclique Pattern: A summary of the Result," *Information Sciences*, 177(3): 703-721 (2007).
5. Wei Li, Jianzhong Li, and Dongdong Zhang, "Dynamically Adjusting the Buffer Sizes of Sliding Windows for Processing Multiple Continuous Queries on Data Streams," Submitted to *IEEE Transactions on Knowledge and Data Engineering*, Feb. 2006.
6. Wei Li, Longjiang Guo, and Jianzhong Li, "Processing Continuous Predictive Aggregate Queries over Data Streams," Submitted to International Journal of Knowledge and Information Systems (KAIS), Jan. 2007.
7. Lixin Ding and Wei Li, "Techniques for Analyzing the Computation time of Evolutionary Algorithms," Submitted to *Theoretical Computer Science*, Sep. 2006.
8. Ping Deng, David MacCallum, My T. Thai, and Wei Li, "Decoding Algorithms in Pooling Designs with Inhibitors and Error-Tolerance," accepted by *International Journal of Bioinformatics Research and Applications (IJBR)*.
9. Feng Wang, Hongwei Du, Xiaohua Jia, Ping Deng, and Wei Li, "Non-unique Probe Selection and Group Testing," accepted by *Theoretical Computer Science*.
10. M. X. Cheng, L. Ruan, W. Wu, "Coverage Breach Problems in Bandwidth Constrained Sensor Networks," accepted by *ACM Transactions on Sensor Networks*.
11. Xiaoyan Cheng, Jianhua Sun, Manki Min, Yingshu Li and Wei Li, "Energy-efficient Broadcast and Multicast Routing in Multihop Ad Hoc Wireless Networks," accepted by *Wireless Communications and Mobile Computing (WCMC)*, Vol 6(2): 213-223 (2006).
12. Wei Li, Yaochun Huang, Xiao Huang and Yingshu Li, "On Error-Tolerant DNA Screening," *Discrete Applied Mathematics*, Vol. 154(12): 1753-1758 (2006).
13. Wei Li, Hongwei Du, Xiaohua Jia, Yingshu Li and Scott Huang, "Minimum connected dominating sets and maximal independent sets in unit disk graphs," *Theoretical Computer Science*, Volume 352(1-3): 1-7 (March 2006).
14. D.-Z. Du, F.K. Hwang, Wei Li, and T. Znati, "A new construction of Transversal Designs," *Journal of Computational Biology*, Vol 13(2006): 990-995.
15. Guanfang Li, Hui Ling, Taieb Znati, and Wei Li, "A Robust On-demand Path Key Establishment framework via Random Key Pre-distribution for Wireless Sensor Networks," *EURASIP Journal on Wireless Communications and Networking*, Vol 2006(2006): 1-10.
16. Manki Min, Xiao Huang, Scott Huang and Wei Li, "Improving construction of connected dominating set with Steiner trees in wireless

- sensor networks, *Journal of Global Optimization*, Vol 35(1): 1111-1119 (2006).
17. Hong Gao, F. K. Hwang, My T. Thai, Weili Wu, Taieb Znati, Construction of $d(H)$ -disjunct matrix for group testing in hypergraphs, *Journal of Combinatorial Optimization*, Vol 12(3): 297-301 (2006).
 18. Yingshu Li, My T. Thai, Zhen Liu and Weili Wu, Protein-Protein Interaction and Group Testing in Bipartite Graphs, *International Journal of Bioinformatics Research and Applications (IJBRA)*, Vol 1, No. 4, pp.414-419, 2005.
 19. Longjiang Guo, Weili Wu, Feng Wang and My Thai, Approximation for Minimum Multicast Route in Optical Network with Nonsplitting Nodes, *Journal of Combinatorial Optimization*, Vol 10, No 4, pp 391-394, Dec. 2005.
 20. Yingshu Li, Meggie Cheng and Weili Wu, Optimal Topology Control for Balanced Energy Consumption in Ad Hoc Wireless Networks, *Journal of Parallel and Distributed Computing (JPDC)*, Vol 65, Issue 2, pp.124-131, Feb. 2005.
 21. Lu Ruan, Hongwei Du, Xiaohua Jia, Weili Wu, Yingshu Li and Ker-l Ko, A Greedy Approximation for Minimum Connected Dominating Sets, *Theoretical Computer Science*, Vol. 329, No. 1-3, pp. 325-330, December, 2004.
 22. L. Ruan and W. Wu, Broadcast routing with minimum wavelength conversion in WDM optical network, *Journal of Combinatorial Optimization*, Vol 9, No 2, 2005.
 23. Weili Wu, Chungui Li and Xiao Huang, Decoding in Pooling Designs, *Journal of Combinatorial Optimization*, Vol. 7, 385-388, 2003.
 24. Manki Min, Scott Huang, Jian Lin, Eugene Shragowitz, Weili Wu, Yiyuan Zhao and Ying Zhao, An approximation scheme for the rectilinear Steiner minimum tree in presence of obstructions, *Novel approaches to hard discrete optimization (Waterloo, ON, 2001)*, 155-164, Fields Inst. Commun., 37, Amer. Math. Soc., Providence, RI, 2003.
 25. Xuzhen Cheng, Xiao Huang, Deying Li, Weili Wu and Dingzhu Du, A polynomial-time approximation scheme for the minimum-connected dominating set in ad hoc wireless networks, *Networks* 42 (2003), No. 4, 202-208.
 26. Hongwei Du, Xiaohua Jia, Deying Li and Weili Wu, Coloring of double disk graphs, *Journal of Global Optimization*, 28 (2004), 115-119.
 27. H. Park, W. Wu, Z. Liu and H. Zhao, DNA screening, pooling design, and simplicial complex, *Journal of Combinatorial Optimization*, Vol. 7, 389-394, 2003.
 28. Weili Wu and Shashi Shekhar, Optimal locations in ring network for data replicas in distributed database with majority voting protocol, submitted to *Journal of Parallel and Distributed Computing*.
 29. Shashi Shekhar, Paul R. Schrater, R. Vatsavai, Weili Wu and Sanjay Chawla, Spatial contextual classification and prediction models for mining geospatial data, *IEEE Transactions on Multimedia Database*, Vol. 4, No. 2, June 2002.
 30. X. Jia, D. Li, X. Hu, W. Wu and D.-Z. Du, Placement of web server proxies with consideration of read and update operations in the internet, to appear in *Computer Journal*, 2003.
 31. Shashi Shekhar and Weili Wu, Optimal placement of data replicas in distributed database with majority voting protocol, *Theoretical Computer Science*, Vol 258 (2001), pp. 555-571.
 32. D.-Z. Du, B. Gao, and W. Wu, A special case for subset interconnection designs, *Discret Applied Mathematics*, Vol 78 (1997), pp. 51-60.
 33. F. Cao, D.F. Hsu, L. Hwang, and W. Wu, Super line-connectivity of consecutive-d diagrams, *Discrete Mathematics*, Vol 183 (1998), pp. 27-38.
 34. X. Du, W. Wu, and D. Kelly, Approximations for subset interconnection designs, *Theoretical Computer Science*, Vol 207 (1998), pp. 171-180.
 35. G.-H. Lin, W. Wu, and K. Yoo, On 3-rate rearrangeability of Clos networks, *DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, Vol 42 (1998), pp. 315-333.
 36. S. Gao, X. Hu, and W. Wu, Nontrivial monotone weakly symmetric Boolean functions with six variables are elusive, *Theoretical Computer Science*, Vol 223 (1999), pp. 193-197.
 37. S. Gao, W. Wu, D.-Z. Du, and X. Hu, Rivest-Vuillemin conjecture on monotone Boolean functions is true for ten variables, *Journal of Complexity*, Vol 15 (1999), pp. 526-536.

Referenced Conference Publications

38. Ping Deng, Weili Wu, Yaochun Huang, Zhongnan Zhang, A Projective Clustering Algorithm in High Dimensional Space, *Proceeding of the 15th International Conference on Software Engineering and Data Engineering (SEDE)*, 2006: 286-291.
39. Yaochun Huang, Hui Xiong, Weili Wu, and Sam Y. Sung, Mining Quantitative Maximal Hyperclique Patterns: A Summary of Results, accepted by *The 10th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2006)*, 552-556, April 9-12, 2006, Singapore.
40. Yaochun Huang, Hui Xiong, Weili Wu and Zhongnan Zhang, A Hybrid Approach for Mining Maximal Hyperclique Patterns, *Proceeding of the 10th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 354-361, Nov. 2004.
41. Mithaela Cardeli, My T. Thai, Yingshu Li and Weili Wu, Energy-Efficient Target Coverage in Wireless Sensor Networks, *Proceeding of IEEE INFOCOM 2005*, March 13-17, Miami, FL, 2005.
42. Weili Wu, Yingshu Li, Scott C.-H. Huang and Ding-Zhu Du, Molecular Biology and Pooling Design, *Proceedings of Workshop on Data Mining in Biomedicine*, Feb. 16-18, 2004.
43. Lei Wang, Latifur Khan and Weili Wu, Automatic Image Annotation and Retrieval Using Weighted Feature Selection, *Proceeding of International Workshop on Multimedia and Web Design (MWD04)*, Dec. 2004.

44. Meggie Cheng, Weili Wu and Lu Ruan, Achieving Minimum Coverage Breach under Bandwidth Constraints in Wireless Sensor Networks, *Proceeding of IEEE INFOCOM 2005*, March 13-17, Miami, FL, 2005.
45. Lakshmi N Sripada, Chang-Tien Lu, and Weili Wu, Evaluating GML Support for Spatial Databases, *Proceeding of 28th COMPSAC Workshop on Geographic and Biological Data Management*, 146-149, Sep. 2004.
46. Zhongnan Zhang, Weili Wu and Yaochun Huang, Mining Dynamic Interdimension Association Rules for Local-Scale Weather Prediction, *Proceeding of International Computer Software and Applications Conference (COMPSAC) Workshop on Geographic and Biological Data Management*, 146-149, Sep. 2004.
47. Weili Wu, Sanjay Chawla, and Shashi Shekhar, A Comparison of Markov Random Field and Spatial Regression Models for Mining Geospatial Data, *proceeding of The Sixth International Conference on Computer Science and Informatics (CS&I'2002)*.
48. Sanjay Chawla, Shashi Shekhar, Weili Wu and Uygur Ozesmi, Extending Data Mining for Spatial Applications: A Case Study in Predicting Nest Locations, *Proceedings of 2000 ACM SIGMOD Workshop on Research Issues in Data Mining and Knowledge Discovery (DMKD 2000)*.
49. Sanjay Chawla, Shashi Shekhar, Weili Wu and Uygur Ozesmi, Predicting Locations Using Map Similarity(PLUMS): A new approach for supervised spatial data mining. *Proceedings of KDD-2000 Sixth ACM SIGKDD International Conference on Knowledge Discovery & Data Mining*.
50. Sanjay Chawla, Shashi Shekhar, Weili Wu and Uygur Ozesmi, Modeling Spatial Dependencies for Mining Geospatial Data, *Proceedings of First SIAM Conference on Data Mining*, 2001.
51. Sanjay Chawla, Shashi Shekhar, Weili Wu, Geographic Spatial Data Mining: A case study of prediction location problems. *2000 UCGIS Summer Assembly*.
52. Sanjay Chawla, Shashi Shekhar, Weili Wu, An Application of Spatial Data Mining Techniques in Geographic Data, *Proceedings of ICC 2001 the 20th International Cartographic Conference Beijing International Convention Center*.
53. Sanjay Chawla, Shashi Shekhar, Weili Wu and Uygur Ozesmi, A Comparison of Markov Random Field and Spatial Regression Models for Mining Geospatial Data, Submitted to *the Seventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 2001.

Authored Book Publication

54. D.-Z. Du, P.M. Pardalos, and W. Wu, *Mathematical Theory of Optimization*, Published by Kluwer Academic Publishers, 2001, ISBN 1-4020-0015-4.

Edited Books:

55. Yingshu Li, My T. Thai, and Weili Wu (eds), *Wireless Sensor Networks and Applications*, Springer Publisher, 2007, ISBN: 0-387-49591-6.
56. Weili Wu and Hui Xiong, *Clustering and Information Retrieval*, Kluwer Academic Publishers, 2004, ISBN 1-4020-7682-7.

Book Chapters

57. Molecular Biology and Pooling Design, Weili Wu, Yingshu Li, Chih-hao Huang, and Ding-Zhu Du, to appear in *Data Mining in Biomedicine* (edited by P.M. Pardalos, V. Boginski and A. Vazacopoulos), Springer, 2007.
58. Projected Clustering Algorithm for Biological Data Analysis, Ping Deng, Weili Wu, Yaochun Huang and Zhongnan Zhang, to appear in DIMACS Book Series *Clustering Challenges in Biological Networks* (edited by W. Art Chaovalitwongse), Springer, 2007.
59. Adaptive Partition, Weili Wu, Ping Deng and E. Shragowitz, to appear in *Encyclopedia of Algorithms* (edited by Minyang Kao), Springer, 2007.
60. Maggie Cheng, Jianhua Sun, Manki Min, Yingshu Li and Weili Wu, Energy-efficient Broadcast and Multicast Routing in Multihop Ad Hoc Wireless Networks. To appear in *Advances in Wireless Networks and Mobile Computing*, (edited by Ding-Zhu Du and Guoliang Xue), in Book Series *Network Theory and Applications*, Springer, 2006.
61. Sanjay Chawla, Shashi Shekhar, Weili Wu and Uygur Ozesmi, Modeling Spatial Dependencies for Mining Geospatial Data: An Introduction, as Chapter 6 of *Geographic Data Mining and Knowledge Discovery*. Harvey J. Miller and Jiawei Han (eds), Taylor and Francis, 2001, ISBN 0-415-23369-0.
62. Shekhar, Y. Huang, W. Wu, C.T. Lu, Categorization of Spatial Data Mining Techniques, as Chapter of Book: *Data Mining for Scientific and Engineering Applications*. V. Kumar, R. Grossman, C. Kamath, R.Namburn (eds.), 2001.
63. DZ Du, P.M. Pardalos, Weili Wu, History of Optimization, in C.A. Floudas and P.M. Pardalos (eds.), *Encyclopedia of Optimization*, Vol 2, (Kluwer Academic Publishers, 2001). Pp. 441-446.
64. D.-Z. Du, P.M. Pardalos, and Weili Wu, Rosen's Method, Global Convergence, and Powell's Conjecture, in C.A. Floudas and P.M. Pardalos (eds.), *Encyclopedia of Optimization*, Vol 5, (Kluwer Academic Publishers, 2001) pp. 56-65.

Technical Report

65. Yaochun Huang, Hui Xiong, Weili Wu, Mining Quantitative Maximal Hyperclique Patterns: A Summary Of Results, Dept of Computer Science, UTDCS-12-06, University of Texas at Dallas.
66. Ping Deng, Weili Wu, Yaochun Huang, Zhongnan Zhang, A Projective Clustering Algorithm in High Dimensional Space, Dept of Computer Science, UTDCS-08-06, University of Texas at Dallas.

67. Sanjay Chawla, Shashi Shekhar, Weili Wu and Xinghong Tan, Spatial Data Mining: An Emerging Tool for Policy Makers, *CURA (Center for Urban and Regional Affairs) Reporter*, Vol 3 (2000), pp.10-14.
68. Sanjay Chawla, Shashi Shekhar and Weili Wu, Modeling Spatial Dependencies for Mining Geospatial Data: A Statistical Approach, *Dept. of Computer Science Technical Report TR 00-001*, University of Minnesota.
69. Sanjay Chawla, Shashi Shekhar and Weili Wu, U. Ozesmi, Extending Data Mining for Spatial Applications: A Case Study in Predicting Nest Locations, *Dept. of Computer Science Technical Report TR 00-026*, University of Minnesota.

10. Other scholarly activity: grants, sabbaticals, software development, etc.:

1. NSF, PI, Collaborative Research: *Collaborative Research: Development of Effective Gene Selection Algorithms for Microarray Data Analysis*, \$150,000, Aug 2006 – July 2009, funded.
2. NSF, PI, Collaborative Research: *Collaborative Research: KEYING SUITE - A Protocol Library or Key Establishment in Sensor Networks*, \$190,000, Feb 2007 – Jan 2010, funded.
3. NSF, PI, Special Meeting: *Workshop on Future Direction in Numerical Algorithms and Optimization*, \$26,000, Oct 2006 – Sep 2007, funded.
4. NSF, PI, Collaborative Research: *Development of Vector Space based Methods for Protein Structure Prediction*, \$128,500, July 2003 – June 2006, funded.
5. NSF, PI, Supplemental Support of Algorithm: *Development of Vector Space based Methods for Protein Structure Prediction*, \$25693.00, November 2004 – June 2005, funded.
6. NSF, PI, Efficient Spatial-Temporal Analysis of Environment and Public Health Related Data, \$397,504.00, September 2005 – August 2008, funded.
7. NSF, PI, Studies in Optimizations with Application, \$250,804.00, September 2005 – August 2008, funded.
8. NSF, PI, Collaborative Research: Fault-tolerant and secure infrastructure for Time Critical Embedded Systems, \$150,000.00, Sep. 2005 – August 2008, funded.
9. Erik Jonsson School of Engineering and Computer Sciences at UTD, PI, Internal Cost Share for Efficient Spatial-Temporal Analysis of Environment and Public Health Related, \$58,455.00, (2005-2008).

10. Jonsson School of Engineering and Computer Sciences at UTD, PI, Internal Cost Share for NSG: Studies in Optimizations with Applications, \$51,690.00 (2005-2008).

11. Jonsson School of Engineering and Computer Sciences at UTD, PI, Internal Cost Share for Collaborative Research: CT-ISG: Fault-Tolerant and Secure Infrastructure for Time Critical Embedded Systems, \$4300.00 (2005-2008).

12. Jonsson School of Engineering and Computer Sciences at UTD, PI, Internal Fund Support for Unfunded NSF Proposal of Efficient Spatial-Temporal Analysis of Environment and Public Health Related Data, \$60,000 (2005-2007).

11. Scientific, professional, and honor societies of which you are a member:
 Member of IEEE (The Institute of Electrical and Electronics Engineers, Inc) Computer Society.
 Member of AAAS (American Association For the Advancement of Science).
 Member of ACM (Association for Computing Machinery).

12. Honors and awards:

- UCGIS (The University Consortium for Geographic Information Science) Summer Assembly Student Travel Award, UCGIS, 2000.
- Excellent Student Scholarship, Liaoning Technical University, China, 1986.

13. Courses taught this and last academic year term-by-term. (This year is the year in which this report was prepared; last year was the year prior to this.) If you were on sabbatical leave, please enter the information for the previous year. Please list each section of the same course separately.

year/ term	course number	course title	credits	No. of students
2007/Spring	CS4347	Database Systems	3	22
2007/Spring	CS6360	Database Design	3	49
2007/Spring	6V81	Special Topics in Computer Science	3	3
2007/Spring	8V99	Dissertation	6	3
2006/Summer	6V81	Special Topics in Computer Science	3	3
2006/Fall	CS6360	Database Design	3	43
2006/Fall	6V81	Special Topics in Computer Science	3	6
2006/Fall	8V99	Dissertation	6	1
2006/Spring	CS6360	Database Design	3	43
2006/Spring	CS4347	Database System (Honor Section)	3	8
2005/Fall	CS8V07	Research	3	2
2006/Spring	CS6V81	Special Topics in Computer Science	3	11
2005/Fall	CS6V81	Special Topics in Computer Science	3	8
2005/Fall	CS6360	Database Design	3	23

2005/Summe	CS6V81	Special Topics in Computer Science	3	7
2005/Spring	CS4347	Database Systems	3	26
2005/Spring	CS6v81	Special Topics in Computer Science	3	8
2005/Spring	CS8v99	Dissertation	9	2
2004/Fall	CSG360.001	Database Design	3	42
2004/Fall	CS7301.002	Advances in Spatial Data Management	3	13
2004/Fall	CS6v81	Special Topics in Computer Science	3	12
2004/Spring	CSG360	Database Design	3	34
2004/Spring	CS6v81	Special Topics in Computer Science	3	10
2004/Spring	CS8v07	Topics in Computer Science	3	1
2004/Summe	CS6v81	Special Topics in Computer Science	3	2
r				

17. If you are not a full-time faculty member, state what percentage of full-time you work: _____% Percentage of this time allocated to the computer science program being evaluated: _____%

14 Other assigned duties performed during the academic year, with average hours per week. Indicate which, if any, carry extra compensation. If you are course coordinator for courses taught by other than full-time faculty, please indicate here which courses.

Master Admission Committee, usually meeting once per week. Duties include review application files and discuss master application cases.

15 Number of students for which you serve as academic advisor: 4

16. Estimate the percentage of your time devoted to scholarly and/or research activities: 100% Please give a brief description of your major research and scholarly activities:

Weil's research interest is mainly in data management and data communication, especially in spatial database with applications in geographic information systems and bioinformatics, distributed database in internet system, and wireless database systems with connection to wireless communication. She has published more than 50 research papers in various prestigious journals and conferences such as IEEE Transaction on Multimedia, Theoretical Computer Science, Journal of Complexity, Discrete Mathematics, Discrete Applied Mathematics, ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, SIAM Conference on Data Mining, UCGIS Summer Assembly, International Conference on Computer Science and Informatics.

She is teaching Database Design Course and is running a research seminar on Data Management and Data Communication. She is an author of the textbook *Mathematical Theory of Optimization* and an editor of the research monograph *Clustering and Information Retrieval*. She is a member of the IEEE Computer Society.

Curriculum Vitae

I-Ling Yen
Computer Science Department
University of Texas at Dallas
MS EC-31, P.O. Box 830688
Richardson, TX 75083
ilyen@utdallas.edu

Education

B.S. in Physics, National Tsing-Hua University, 1979
M.S. in Computer Science, University of Houston, 1985
Thesis: The Role of Parallel Processing in Application Programs
Ph.D. in Computer Science, University of Houston, 1992
Dissertation: Modularity and Resilience for High Performance Parallel Programs

Work Experience

- 1997 -- Associate Professor
present Department of Computer Science, University of Texas at Dallas
 - Teaching courses and supervising students
 - Conducting research in the areas of distributed systems, fault-tolerant computing, security systems, multimedia systems, web and internet technologies, and electronic commerce
- 1992 -- Assistant Professor
Department of Computer Science, Michigan State University
 - Teaching courses and supervising students
 - Conducting research in the areas of parallel and distributed operating systems, fault-tolerant computing, object-oriented concurrent programming, and parallel algorithms
- 1990 -- Seismic Data Processing Programmer
1991 Western Geophysical, Houston, Texas
 - Designed an interactive seismic data processing package, OMEGA.
 - Implemented a control program that coordinates and efficiently delivers a large amount of data traces or gathers among components.
- 1986 -- Software Quality Assurance Engineer
1988 Valid Logic Systems, Inc., San Jose, California
 - Developed an automated test suite for quality assurance.
 - Developed a path analyzer that instruments the program to analyze the test set coverage and correspondingly improve the testing.
- 1985 -- Systems Programmer
1986 COINS, Univ. of Massachusetts, Amherst, Mass.
 - Developed network packages for monitoring various network activities.
 - Developed an Ethernet protocol to achieve a transparent distributed system environment.

Service to the Profession

- Panelist for NSF.
- Reviewer for NSF.
- Reviewer for IEEE-TC, IEEE-TKDE, IEEE-TSE, IEEE-TPDS, JPDC, JSS, and Acta Informatica journals, and many conferences.
- Editor for International Journal on Artificial Intelligence Tools.
- General Co-Chair for IEEE High Assurance Systems Engineering (HASE), 2007.
- Program Co-Chair for IEEE Service-Oriented Systems Engineering Symposium (SOSE), 2007.
- Program Co-Chair for IEEE Symposium on Reliable Distributed Systems (SRDS), 2007.
- Program Vice Chair for IFIT International Conference on Embedded and Ubiquitous Computing (EUC), 2007
- Program Committee member for the Embedded Systems: Applications, Solutions, and Techniques Track in ACM SAC 2007.
- Program Vice Chair for IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC), 2006.
- Program Committee member for IEEE International Symposium on Object and component-oriented Real-time distributed Computing (ISORC), 2006.
- Program Committee member for the IEEE International Workshop on Service-Oriented System Engineering (SOSE), 2006.
- Program Committee member for the Embedded Systems: Applications, Solutions, and Techniques Track in ACM SAC 2006.
- Program Committee member for the IEEE International Workshop on Service-Oriented System Engineering (SOSE), 2005.
- Program Committee member for the IEEE International Conference on Information Reuse and Integration (IRI), 2005.
- Program Committee member for the International Workshop on Software and Compilers for Embedded Systems (SCOPE), 2005.
- Program CoChair for the 2005 International Symposium on Autonomous Decentralized Systems (ISADS'05).
- Program Committee member for the Embedded Systems: Applications, Solutions, and Techniques Track in ACM SAC 2005.
- Program Committee member for the 2004 IEEE International Conference on Tools with AI (ICTAI'04).
- Program Committee member for the 2004 IEEE High Assurance Systems Engineering Symposium (HASE'04).
- Program Committee member for the Embedded Systems: Applications, Solutions, and Techniques Track in ACM SAC 2004.
- Program Committee member for the 2003 IEEE International Conference on Tools with AI (ICTAI'03).
- Program Committee member for the Embedded Systems: Applications, Solutions, and Techniques Track in ACM SAC 2003.
- Publication Chair for the 2002 IEEE International Symposium on Object-oriented Real-time distributed Computing, Washington, DC (ISORC'02).

- Program Committee member for the 2002 IEEE High Assurance Systems Engineering Symposium (HASE'02).
- Program Committee member for the 2001 International Conference on Computer Software and Applications Conference (COMPSAC'01)
- Program Committee member for the 2001 IEEE High Assurance Systems Engineering Symposium (HASE'01).
- Panel Chair for the 2001 IEEE Symposium on Reliable Distributed Computing (SRDS'01).
- Program Committee Member for the 24th Annual International Conference on Computer Software and Applications Conference (COMPSAC'00).
- Program Committee member for the 2000 IEEE Symposium on Application-Specific Software and System Engineering & Technology (ASSET'00).
- Program Committee member for the 2000 IEEE High Assurance Systems Engineering Symposium (HASE'00).
- Program Committee member for the 2000 IEEE Symposium on Reliable Distributed Systems (SRDS'00).
- Program Committee member for the 2000 IEEE Workshop on Multimedia Software Engineering (MSE'00).
- Program Chair for the 1999 IEEE Symposium on Application-Specific Software and System Engineering & Technology (ASSET'99).
- Program Chair for the 23rd Annual International Conference on Computer Software and Applications Conference (COMPSAC'99).
- Program Committee member for the 1999 IEEE High Assurance Systems Engineering Symposium (HASE'99).
- Program Committee member for the 1998 IEEE Symposium on Object-oriented Real-Time Computing (ISORC'98).
- Program Committee member for the 1998 IEEE Symposium on Reliable Distributed Systems (SRDS'98).
- Program Committee member for the 1998 IEEE Workshop on Multimedia Software Engineering (MSE'98).
- Program Committee member for the 1998 IEEE High Assurance Systems Engineering Symposium (HASE'98).
- Guest Editor for a theme issue of IEEE Computer, April, 1998, devoted to High-Assurance Systems.
- Program Committee member for the IEEE Workshop on Object-oriented Reliable and Dependable systems (WORDS'97).
- Program Chair for the 1997 IEEE High Assurance System Engineering Workshop (HASE'97).
- Vice-Chair for the 1996 IEEE High Assurance System Engineering Workshop (HASE'96).
- Panel Mediator for the 1996 IEEE High Assurance System Engineering Workshop (HASE'96).
- Vice-Chair for the 1995 IEEE Int'l Conf. on Tools with AI (ICTAI'95).
- Finance Chair for the 13th Symposium on Reliable Distributed Systems (SRDS'94).
- Program Committee member for the 1994 IEEE International Conference on Tools with AI (ICTAI'94).

University Services

- Search Committee, CS, UTD, 2002-2005.

- PhD Committee, CS, UTD, 2003-2004.
- Core Committee for the Support of Women and Minorities, UTD, 2002-2004.
- Equipment Committee Member, CS, UTD, 2001-2003.
- Distance Learning Committee Chair, UTD, 2000-2001.
- Equipment Committee Chair, CS, UTD, Fall 2000-2001.
- Colloquium Committee Chair, UTD, 1998-1999.
- Graduate Student Admission Committee member, CS, UTD, 1997-1998.
- Colloquium Committee member, CS, UTD, 1997-1998.

Awards

- I-Ling Yen, F.B. Bastani, and Kendra Cooper, "Component-based QoS-driven synthesis of embedded software," NASA Ames, 5/2005-8/2006, \$28,000.
- I-Ling Yen, F.B. Bastani, and Jing Dong, "End-to-End Dependability Assurance for Command-and-Control Systems," DOD SPAWAR/OSD-NII, 5/2005-5/2006, \$44,058.
- F.B. Bastani and I-Ling Yen, "Developing Advanced Middleware for Convergence of IT and Telecommunications - Part II," Alcatel USA, 9/2004-1/2005, \$40,500.
- F.B. Bastani and I-Ling Yen, "Federation of Distributed Presence Servers," Alcatel USA, 12/2004-6/2005, \$59,500.
- F.B. Bastani, I-Ling Yen, Latifur Khan, and G.R. Dattatreya, "Developing advanced middleware for convergence of IT and communications through SIP-based next-generation applications, rich presence, and user interaction systems," Alcatel USA, 12/2003-1/2005, \$227,500.
- F.B. Bastani and I-Ling Yen, "Advanced collaborative environment for next generation communication services," Alcatel USA, 11/2003-3/2004, \$36,155.
- F.B. Bastani, G.R. Dattatreya, and I-Ling Yen, "Graphical and Multi-Modal Proxy System," Alcatel USA, 1/2003-12/2003, \$113,000.
- F.B. Bastani and I-Ling Yen, "Advanced Architecture and Middleware for Next Generation Interactive Communication Services," Alcatel USA, 1/2003-12/2003, \$38,847.
- A. Fumagalli, P. Balsara, F. Bastani, D. Batia, S. Venkatesan, I. Yen, "Advanced Radar and Electro-Optical Sensor Systems," Army Space and Missile Defense Command (SMDC), 6/2002 - 6/2004, \$210,000.
- I-Ling Yen, Farokh Bastani, Latifur Khan, Edwin Sha, and Yi Deng, "A Distributed Component Repository for Rapid Synthesis of Adaptive Real-Time Systems," National Science Foundation, 9/2001 - 8/2005, \$499,866.
- William Osborne, Farokh Bastani, I-Ling Yen, Simeon Ntafos, and Dung Huynh, "Embedded Software Center," Alcatel, USA and Texas Instruments, 6/2000 - 5/2002, \$600,000.
- I-Ling Yen, "Support for Adaptive Multi-Criteria Transaction Processing in E-Commerce Applications," Texas Advanced Technology Program, 1/2000 - 8/2002, \$117,800.
- Farokh Bastani and I-Ling Yen, "Assessing Y2K Compliance for Mission-Critical Systems," Army Research Laboratory, 9/1/1999 - 8/31/2000, \$105,465.
- I-Ling Yen, "A Courseware Tool for the Development of Web-Based, On-Line Courses for ECRS," ECRS, 9/1/1999 - 5/31/2000, \$4,950.
- I-Ling Yen, Biao Chen, D. T. Huynh, Ravi Prakash, and Si Qing Zheng, "Hardware-Software Co-design for IP Component Implementation," Alcatel, 1/1999 - 12/1999, \$50,000.
- Biao Chen, G. R. Dattatreya, Ravi Prakash, I-Ling Yen, and Si Qing Zheng, "A Study of Strategies for IP Quality of Service," Alcatel, 1/1999 - 12/1999, \$50,000.

- Si Qing Zheng, Biao Chen, and I-Ling Yen, "Implementation Issues in Hardware-Software Co-Design for Burst Switching," *Alcatel*, 1/1999 – 12/1999, \$25,000.
- Si Qing Zheng, Biao Chen, and I-Ling Yen, "Algorithmic Aspects of Hardware-Software Co-Design for Burst Switching," *Alcatel*, 1/1999 – 12/1999, \$25,000.
- I-Ling Yen, Research Experience for Undergraduates, National Science Foundation, 9/1998 – 8/1999, \$5,000.
- I-Ling Yen and Biao Chen, "Establishing a Computer-Aided Education Environment using the Web Lecture System," *TxTEC*, 7/1998 – 8/1999, \$21,650.
- I-Ling Yen, etc., "Establishing a Computer-Aided Education Environment using the Web Lecture System," *Nortel*, 7/1998 – 8/2000, \$138,000.
- I-Ling Yen, "Processor Specialization in Fault-Tolerant Distributed Systems," National Science Foundation, 9/1997 – 2/2000, \$115,343.
- I-Ling Yen, "Systematic Integration of Fault Tolerance in High Performance Parallel Programs," National Science Foundation, 9/1995 – 6/1997, \$17,985.
- I-Ling Yen, "A Run-Time Support System for Scalable Object-Oriented Parallel Programming," GE Foundation, 1/1994 – 8/1995, \$20,000.

Teaching Interests

Operating systems, fault tolerant systems, security, grid and peer-to-peer computing, software engineering, parallel and distributed systems, multimedia systems, real-time systems.

Courses Taught

Operating Systems, Advanced Operating Systems, Compiler Construction, Information Assurance, Grid and Peer-to-Peer Computing, Web Technologies, Multimedia Systems.

PhD Students Supervised

- Yanjin Zhang, "Assured Information Sharing in Data Grids."
- Wei Li, "A Framework to Support Secure and Survivable Web Services."
- Jiang He, "A Rule-Based Extensible Framework for Content Adaptation for Mobile Devices," Plan to graduate in Fall 2007.
- Tong Gao, "A SysML-Based Framework for QoS-Driven Adaptation of Distributed Systems," Plan to graduate in Summer 2007.
- Wei Hao, "Web Proxy Caching for Service-Centric Objects," Plan to graduate in Spring 2007.
- Hui Ma, "QoS Composition Analysis for Component-based Embedded System Development," Plan to graduate in Fall 2006.
- Manghui Tu, "A Data Management Framework for Secure and Dependable Data Grid," Graduated in Summer 2006.
- Peng Li, "The Preference Update Framework for Web and E-Commerce Applications," Graduated in Spring 2005.
- Qingkai Ma, "Secure and Survivable Mobile Agent Systems," Graduated in Fall 2004.
- Zhonghang Xia, "An Overlay Agent Framework for Multimedia Delivery Services," Graduated in Summer 2004.

Research Interests

Parallel and distributed systems, fault-tolerant computing, secure and survivable systems, self-stabilizing algorithms, grid and peer-to-peer computing, AI-based techniques in system engineering, embedded system development techniques and tools, component-based design of distributed adaptive systems.

Journal Publications

1. Jia Zhou, Kendra Cooper, Hui Ma, I-Ling Yen, "On the customization of components: A rule-based approach," major revision, *IEEE Transaction on Knowledge and Data Engineering*.
2. Manghui Tu, Peng Li, I-Ling Yen, Bhavani Thuraisingham, Latifur Khan, "Secure data objects replication in data grid," under second review, *IEEE Transactions on Dependable and Secure Computing*.
3. Zhonghang Xia, Wei Hao, I-Ling Yen, "A distributed integrated request processing algorithm for QoS assurance in large-scale media delivery systems," major revision, *Journal of Parallel and Distributed Computing*, Elsevier.
4. Manish Gupta, Jicheng Fu, Farokh Bastani, I-Ling Yen, Latifur Khan, "Rapid goal-oriented automated software testing using MEA-graph planning," *Software Quality Journal*, Springer Netherlands, Vol. 15, No. 2, June 2007.
5. Peng Li, I-Ling Yen, and Zhonghang Xia, "Preference update for E-commerce applications: Model, language, and processing," *Electronic Commerce Research*, Springer Netherlands, Vol. 7, No. 1, March 2007.
6. Jiang He, Tong Gao, Wei Hao, I-Ling Yen, Farokh Bastani, "A flexible content adaptation system using a rule-based approach," *IEEE Transactions on Knowledge and Data Engineering*, Vol. 19, No. 1, January 2007, pp. 127-140.
7. Wei Hao, Jicheng Fu, Jiang He, I-Ling Yen, Farokh Bastani, Ingray Chen, "Extending proxy caching capability: Issues and performance," *World Wide Web Journal*, Springer Netherlands, Vol. 9, No. 3, October 2006, pp. 253-275.
8. Hui Ma, I-Ling Yen, Jia Zhou, Kendra Cooper, "QoS analysis for component-based embedded software: Model and methodology," *Journal of Systems and Software*, Elsevier, Vol. 79, No. 6, June 2006, pp. 859-870.
9. Zhonghang Xia, I-Ling Yen, Donglei Du, and Peng Li, "An integrated admission control scheme for the delivery of streaming media," *Journal of Parallel and Distributed Computing*, Elsevier, Vol. 66, No. 3, March 2006, pp. 334-344.
10. Tong Gao, Hui Ma, I-Ling Yen, Latifur Khan, and Farokh Bastani, "A repository for component-based embedded software development," *International Journal of Software Engineering and Knowledge Engineering*, Vol. 16, No. 4, August 2006, pp. 523-552.
11. Ing-Ray Chen, O. Yilmaz, and I-Ling Yen, "Admission control algorithms for revenue optimization with QoS guarantees in mobile wireless networks," *Journal of Parallel and Distributed Computing*, Elsevier, Vol. 66, No. 3, March 2006, pp. 334-344.
12. Manghui Tu, Peng Li, Liangliang Xiao, I-Ling Yen, Farokh Bastani, "Replica placement algorithms for mobile transaction systems," *IEEE Transactions on Knowledge and Data Engineering*, Vol. 18, No. 7, July 2006, pp. 954 – 970.
13. Manish Gupta, Manghui Tu, Latifur Khan, Farokh Bastani, and I-Ling Yen, "A study of the model and algorithms for handling location dependent continuous queries," *International Journal on Knowledge and Information Systems*, Springer Netherlands, Vol. 8, No. 4, Nov. 2005, pp. 414-437.
14. Zhonghang Xia, Wei Hao, I-Ling Yen, Peng Li, "A distributed admission control model for QoS assurance in large-scale media delivery systems," *IEEE Transactions on Parallel and Distributed Systems*, Dec. 2005, pp. 1143-1153.

15. Ing-Ray Cheo, Ngoc Anh Phan, I-Ling Yen, "Update propagation algorithms for supporting disconnected write in mobile wireless systems with data broadcasting capability," *Journal of Wireless Personal Communications*, Springer Netherlands, Vol. 34, No. 3, August 2005, pp. 227-253.
16. Peng Li, I-Ling Yen, and Zhonghang Xia, "M3-Update: a new update model for E-Commerce and web-based applications," *International Journal of Computers and Their Applications*, Vol. 12, No. 3, Sep. 2005, pp. 152-162.
17. Dongfeng Woog, Farokh Bastani, I-Ling Yen, "Automated aspect-oriented decomposition of process-control systems for ultra-high dependability assurance," *IEEE Transactions on Software Engineering*, Vol. 31, No. 9, Sep. 2005, pp. 713-732.
18. Ing-Ray Chen, Sheng-Tun Li, and I-Ling Yen, "Adaptive QoS control based on benefit optimization for video servers providing differentiated services," *Multimedia Tools and Applications*, Kluwer, Vol. 25, No. 2, Feb 2005, pp. 167-185.
19. Feng Luo, Latifur Khan, F.B. Bastani, I-Ling Yen, and J. Zhou, "A dynamical growing self-organizing tree (DGSOT) for hierarchical clustering gene expression profiles," *Bioinformatics Journal*, Oxford University Press, Nov 2004, pp. 2605-2617.
20. Peng Li, I-Ling Yen, and Zhonghang Xia, "Optimizing concurrent M3-transactions: A fuzzy constraint satisfaction approach," accepted by *Journal of Systemics, Cybernetics, and Informatics*, Vol. 2, No. 5, 2004.
21. Sung Kim, Farokh B. Bastani, I-Ling Yen, and Ing-Ray Chen, "Systematic reliability analysis of a class of application-specific embedded software frameworks," *IEEE Transactions on Software Engineering*, Vol. 30, No. 4, April 2004, pp. 218-230.
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24. Ing-Ray Chen, Ngoc Anh Phan, and I-Ling Yen, "Algorithms for supporting disconnected write operations for wireless web access in mobile client-server environments," *IEEE Transactions on Mobile Computing*, Vol. 1, No. 1, 2002, pp. 46-58.
25. I-Ling Yen, Liang Dai, Ing-Ray Chen, and Biao Chen, "A nonblocking atomic transaction processing algorithm with real-time property," *International Journal on Reliability, Quality, and Safety Engineering*, World Scientific, Vol. 8, No. 4, 2001, pp. 391-408.
26. I-Ling Yen, Farokh B. Bastani, and David Taylor, "Design of multi-invariant data structures for robust shared accesses in multiprocessor systems," *IEEE Transaction on Software Engineering*, March 2001, pp. 193-207.
27. I-Ling Yen, Ifkhar Ahmed, Ramanujam Jagannath, and Sreeparna Kundu, "The Design and Implementation of a Customizable Fault Tolerance Framework," *International Journal of Software Engineering and Knowledge Engineering*, World Scientific, Vol. 9, No. 2, 1999, pp. 181-202.
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31. I-Ling Yen and Farokh B. Bastani, "Parallel hashing: Collision resolution strategies and performance," *Journal of Parallel and Distributed Computing*, Elsevier, vol. 31, Dec. 1995, pp. 190-198.
32. I-Ling Yen, Ernst L. Leiss, and Farokh B. Bastani, "Exploiting redundancy for performance speed-up in parallel systems," *IEEE Parallel and Distributed Technology*, Nov. 1993, pp. 51-60.
33. Farokh B. Bastani, I-Ling Yen, and Ing-Ray Cheo, "A class of inherently fault-tolerant distributed programs," *IEEE Transactions on Software Engineering*, Oct. 1988, pp. 1432-1442.
34. A. Molra, S.S. Iyengar, Farokh B. Bastani, and I-Ling Yen, "Multilevel data structures: Models and performance," *IEEE Transactions on Software Engineering*, June 1988, pp. 858-867.
35. Farokh B. Bastani, I-Ling Yen, and S.S. Iyengar, "Concurrent maintenance of data structures in a distributed environment," *The Computer Journal*, Oxford University Press, Vol. 31, No. 2, 1988, pp. 165-174.

Refereed Conference Proceedings

1. Yansheng Zhang, Jichen Fu, I-Ling Yen, Farokh B. Bastani, Ann T. Tai, Savio Chau, Farokh Vatan, Amir Fijany, "QoS adaptive ISHM systems," *IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI)*, Arlington, VA, Nov. 2006, pp. 47-54.
2. Wei Hao, Tong Gao, I-Ling Yen, Yinong Chen, Ray Paul, "An infrastructure for Web services migration for real-time applications," *IEEE Int'l Symposium on Service-Oriented System Engineering (SOSE)*, Oct. 2006, pp. 41-48.
3. Venkata U. B. Challagulla, Farokh B. Bastani, I-Ling Yen, "A unified framework for defect data analysis using the MBR technique," *IEEE Intl. Conf. on Tools with Artificial Intelligence (ICTAI)*, Arlington, VA, Nov. 2006, pp. 39-46.
4. Jicheng Fu, Farokh Bastani, I-Ling Yen, "Automated AI planning and code pattern based code synthesis," *IEEE Int'l Conf. on Tools with Artificial Intelligence (ICTAI)*, Arlington, VA, Nov 2006, pp. 540-546.
5. Jian Liu, Jicheng Fu, Yansheng Zhang, Farokh Bastani, I-Ling Yen, Ann Tai, Savio Chau, "Deductive glue code synthesis for embedded software systems based on code patterns," *IEEE Int'l Symposium on Object and component-oriented Real-time distributed Computing (ISORC)*, Gyeongju, Korea, April 2006.
6. Quang Vinh Nguyen, Mao Lin Huang, Kang Zhang, I-Ling Yen, "A visualization model for Web sitenaps," *IEEE Conf. on Computer Graphics, Imaging and Visualization (CGIV)*, Sydney, Australia, July 2006, pp. 12-17.
7. Nirav Shah, Farokh B. Bastani, I-Ling Yen, "A real-time scheduling based framework for traffic coordination systems," *IEEE Int'l Conf on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC)*, Taiwan, June 2006, pp. 321-325.
8. Jia Zhou, Kendra Cooper, I-Ling Yen, John Linn, Raymond Paul, "A software enhancement system for embedded software development," *IEEE Int'l Symposium on Object and component-oriented Real-time distributed Computing (ISORC)*, Gyeongju, Korea, April 2006.
9. Tong Gao, Hui Ma, I-Ling Yen, Farokh Bastani, Wei-Tek Tsai, "Toward QoS analysis of adaptive service-oriented architecture," *IEEE Int'l Workshop on Service-Oriented System Engineering (SOSE)*, Beijing, China, October 2005, pp. 227-236.
10. Tong Gao, Kendra Cooper, Hui Ma, I-Ling Yen, Farokh Bastani, "Toward a UML profile to support component-based distributed adaptive systems," *Int'l Conf. on Software Engineering and Knowledge Engineering (SEKE)*, Taipei, Taiwan, July 2005, pp. 217-222.

11. Qingkai Ma, I-Ling Yen, Wei Hao, Manghui Tu, and Farokh Bastani, "An adaptive multiparty protocol for secure data protection," *IEEE Int'l Conf. on Parallel and Distributed Systems (ICPADS)*, Fukuoka, Japan, July 2005, pp. 43-49.
12. Jian Liu, Farokh Bastani, I-Ling Yen, "A formal foundation of code pattern based development," *Int'l Conf. on Software Engineering and Knowledge Engineering (SEKE)*, Taipei, Taiwan, July 2005, pp. 274-279.
13. Jian Liu, Farokh Bastani, I-Ling Yen, "Meta code pattern and its refinement," *Int'l MultiConf. in Computer Science and Computer Engineering*, Las Vegas, Nevada, June 2005.
14. Dongfeng Wang, Farokh B. Bastani, I-Ling Yen, and Raymond Paul, "An approach for designing highly adaptable process-control systems," *IEEE Int'l Symp. on Object-oriented Real-time Computing Systems (ISORC)*, Seattle, Washington, May 2005, pp. 106-113.
15. Jia Zhou, Kendra Cooper, I-Ling Yen, and Raymond Paul, "Rule-base technique for component adaptation to support QoS-based reconfiguration," *IEEE Int'l Symp. on Object-oriented Real-time Computing Systems (ISORC)*, Seattle, Washington, May 2005, pp. 426-433.
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17. Wei Li, Jiang He, Qingkai Ma, I-Ling Yen, Farokh B. Bastani, Raymond Paul, "A framework to support survivable web services," *IEEE Int'l Parallel and Distributed Processing Symposium (IPDPS)*, Denver, Colorado, April 2005, pp. 93 (10 pages).
18. Hui Ma, Dongfeng Wang, Farokh Bastani, I-Ling Yen, Kendra Cooper, "A model and methodology for composition QoS analysis of embedded systems," *IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, San Francisco, California, March 2005, pp. 56-65.
19. V.U.B. Challagulla, F.B. Bastani, I.-L. Yen, and R. Paul, "Empirical assessment of machine learning based software defect prediction techniques," *IEEE Int'l Workshop on Object-oriented Real-time Dependable Systems (WORDS)*, Sedona, AZ, Feb. 2005, pp. 282-303.
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21. M. Awad, L. Khan, F. Bastani, and I.-L. Yen, "An effective support vector machines (SVM) performance using hierarchical clustering," *IEEE Int'l Conf. on Tools with Artificial Intelligence (ICTAI)*, Boca Raton, Nov. 2004, pp. 663-667.
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23. Zhonghang Xia and I-Ling Yen, "Proxy assistant for streaming media delivery," *IEEE Int'l Conference on Multimedia and Expo (ICME)*, June 2004.
24. Zhonghang Xia, Peng Li, and I-Ling Yen, "A neural network based approach for overlay multicast in media streaming systems," *IEEE Int'l Parallel and Distributed Processing Symposium (IPDPS)*, Santa Fe, New Mexico, April 2004, pp. 54 (10 pages).
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30. Jia Zhou, Kendra Cooper, and I-Ling Yen, "A rule-based component customization technique for QoS properties," *IEEE Symp. on High Assurance Systems Engineering (HASE)*, Tampa, Florida, March 2004, pp. 302-303.
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68. I-Ling Yen, "Fault tolerance via specialization: An efficient approach for tolerating general failures," *Int'l Design and Technology Processing Conference*, Austin, Texas, Dec. 1996.
69. I-Ling Yen, "Specialized N-modular redundant processors in large-scale distributed systems," *IEEE Symp. on Reliable Distributed Systems (SRDS)*, Niagara-on-the-lake, Ontario, Canada, Oct. 1996, pp. 12-21.
70. I-Ling Yen, "Multiple invariant system design for fault-tolerant real-time applications," *IEEE Workshop on Object-Oriented Real-Time Dependable Systems (WORDS)*, Laguna Beach, California, Feb. 1996, pp. 101-107.
71. I-Ling Yen and Ing-Ray Chen, "Quality assessment for multiple server cooperating systems," *IEEE Int'l Computer Software and Applications Conf. (COMPSAC)*, Dallas, Texas, Aug. 1995, pp. 218-223.
72. I-Ling Yen and Farokh B. Bastani, "A highly safe self-stabilizing mutual exclusion algorithm," *Workshop on Self-Stabilizing Systems*, Las Vegas, Nevada, May 28-29, 1995.

73. I-Ling Yen and Farokh B. Bastani, "Robust parallel resource management in shared memory multiprocessor systems," IEEE Int'l Parallel Processing Symposium (IPPS), Santa Barbara, California, April 1995, pp. 458-465.
74. I-Ling Yen and Farokh B. Bastani, "On efficiently tolerating general failures in autonomous decentralized multiserver systems," IEEE Int'l Symp. on Autonomous Decentralized Systems (ISADS), Phoenix, Arizona, April 1995, pp. 288-296.
75. I-Ling Yen and Ing-Ray Chen, "A systematic approach for integration of multimedia capabilities in consulting systems," Pacific Workshop on Distributed Multimedia Systems, Hawaii, March 1995, pp. 186-193.
76. Y.-K. Chu, I-Ling Yen, and Diane Rover, "Guiding processor allocation with estimated execution time for mesh connected multiple processor systems," IEEE Hawaii-International Conference on System Sciences (HICSS), Hawaii, Jan. 1995, pp. 163-172.
77. I-Ling Yen, Ing-Ray Chen, and Farokh B. Bastani, "Reliability assessment for the design of dependable soft real-time cooperating systems," IEEE Workshop on Object-Oriented Real-Time Dependable Systems (WORDS), Oct. 1994, Dana Point, California, pp. 134-139.
78. Y.-Y. Fang, I.-L. Yen, R.M. Dubash, "Improving the performance of Lee's maze routing algorithm on parallel computers," Symp. on Parallel and Distributed Processing, Las Vegas, Nevada, Oct. 1994.
79. Y.-K. Chu, I-Ling Yen, and Diane Rover, "Incorporating job scheduling for processor allocation on two-dimensional mesh-connected systems," Symp. on Parallel and Distributed Processing, Las Vegas, Nevada, Oct. 1994.
80. I-Ling Yen and Farokh B. Bastani, "Systematic incorporation of efficient fault tolerance in systems of cooperating parallel programs," IEEE Fault-Tolerant Computing Symposium (FTCS), Austin, Texas, June 1994, pp. 154-163.
81. I-Ling Yen, M.-K. Jeng, Ing-Ray Chen, "Processor allocation for parallel object-oriented programs," Int'l Conf. Parallel and Distributed Systems (ICPADS), Taipei, Taiwan, Dec. 1993, pp. 212-216.
82. I-Ling Yen and Farokh B. Bastani, "Robust coordination in distributed multi-server systems," IEEE Workshop on Advances in Parallel and Distributed Systems, Princeton, New Jersey, Oct. 1993, pp. 133-138.
83. I-Ling Yen, Rumi M. Dubash, and Farokh B. Bastani, "Strategies for mapping Lee's maze routing algorithms onto parallel architectures," IEEE Int'l Parallel Processing Symposium (IPPS), Los Angeles, California, April 1993, pp. 672-679.
84. I-Ling Yen and F.B. Bastani, "Inherent fault tolerance in decentralized process-control systems," IEEE Int'l Symp. on Autonomous Decentralized Systems (ISADS), Kawasaki, Japan, March 1993, pp. 267-274.
85. I-Ling Yen, Ernst L. Leiss, and Farokh B. Bastani, "A repetitive fault tolerance model for parallel programs," IEEE Hawaii Int'l Conf. on System Sciences (HICSS), Hawaii, Jan. 1993, pp. 447-455.
86. I-Ling Yen, T. AlMarzooq, Farokh B. Bastani, and Ernst L. Leiss, "Information hiding in parallel programs: Model and experimental evaluation on the Connection Machine," Symp. Frontiers of Massively Parallel Computations, McLean, Virginia, October 1992, pp. 326-333.
87. Rumi M. Dubash, Farokh B. Bastani, and I-Ling Yen, "Fault tolerant process planning and control," IEEE Int'l Computer Software and Applications Conf. (COMPSAC), Chicago, Illinois, Sep. 1992, pp. 188-193.
88. I-Ling Yen and Farokh B. Bastani, "Hash table in massively parallel systems," Proc. IEEE Int'l Parallel Processing Symposium (IPPS), Los Angeles, California, March 1992, pp. 660-664.

89. I-Ling Yen, Ernst L. Leiss, and Farokh B. Bastani, "An inherently fault-tolerant sorting algorithm," IEEE Int'l Parallel Processing Symposium (IPPS), Los Angeles, California, Apr-May 1991, pp. 37-42.
90. I-Ling Yen, "Massively parallel hash algorithms and performance," ACM Proc. Computer Science Conference (CSC), San Antonio, TX, March 1991, pp. 21-28.
91. I-Ling Yen, Farokh B. Bastani, and Ernst L. Leiss, "High performance massively parallel abstract data type components," IEEE Int'l Computer Software and Applications Conf. (COMPSAC), Chicago, Illinois, Oct. 1990, pp. 196-201.
92. I-Ling Yen, Dar-Ren Leu, and Farokh B. Bastani, "Hash table and sorted array: A case study of multi-entry data structures in massively parallel systems," Symp. Frontiers of Massively Parallel Computations, McLean, Virginia, March 1990, pp. 51-54.
93. I-Ling Yen, Farokh B. Bastani, and Yi Zhao, "On self-stabilization, nondeterminism, and inherent fault tolerance," Proc. MCC Workshop on Self-Stabilizing Systems, Austin, Texas, August 1989.
94. Farokh B. Bastani and I-Ling Yen, "A fault-tolerant replicated storage system," IEEE Int'l Conf. on Data Engineering (ICDE), Los Angeles, California, Feb. 1987, pp. 449-454.
95. Farokh B. Bastani and I-Ling Yen, "Impact of parallel processing on software quality," Int'l Conf. on SuperComputing Systems, Orlando, Florida, Dec. 1985, pp. 428-436.
96. Farokh B. Bastani and I-Ling Yen, "Analysis of an inherently fault-tolerant program," IEEE Int'l Computer Software and Applications Conf. (COMPSAC), Chicago, Illinois, Oct. 1985.

Book Chapters and Position Papers

1. I-Ling Yen, Tong Gao, Hui Ma, "A genetic algorithm based QoS analysis tool for reconfigurable service oriented systems," to appear in Advances in Machine Learning Application in Software Engineering, edited by Jeff Tsai.
2. I-Ling Yen, Raymond Paul, and Kijiji Mori, "Guest editors' introduction: Integrated design, development, and evaluation methods for high assurance systems," IEEE Computer, April 1998.
3. I.-L. Yen, "Panel: High assurance engineering. The good, the bad, and the ugly," Proceedings High Assurance Systems Engineering, Ontario, Canada, Nov. 1996.
4. I.-L. Yen, "Processor allocation for objects in massively parallel systems," Proceedings SETS, Houston, TX, May 1993.

CURRICULUM VITAE OF KANG ZHANG

NAME: Kang ZHANG
GENDER AND MARRIAGE: Male, married with two children
DATE OF BIRTH: 12 April 1959
COUNTRY OF CITIZENSHIP: Australia
POSTAL ADDRESS: Department of Computer Science
 Box 830688, MS EC31
 The University of Texas at Dallas
 Richardson, TX 75083-0688, USA
 kzhang@utdallas.edu
E-MAIL ADDRESS: Work: +1-972-883 6351 Home: +1-972-267 2411
TELEPHONE: +1-972-883 2349
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WWW HOME PAGE: <http://www.utdallas.edu/~kzhang>

Education

3/1978 - 2/1982: BEng in Computer Engineering
 Department of Computer Engineering
 University of Electronic Science and Technology, Chengdu, China
2/1985 - 11/1985: Certificate in English Language Training
 Guangzhou Foreign Language Institute, China
4/1987 - 12/1990: PhD in Electronic Engineering
 Thesis title: *DIALOG: A Dataflow Interpretation Approach to Logic Programs*
 Advisors: Barry Wilkinson and Ray Thomas
 University of Brighton, UK

Current and Past Employment

9/2005 - date: Professor (with tenure)
 Assistant Department Head, responsible for Graduate Education (1/2006 -)
 Director of Visual Computing Laboratory
 Department of Computer Science
 The University of Texas at Dallas, Box 830688, MS EC31
 Richardson, Texas 75083-0688, USA.
9/2000 - 8/2005: Associate Professor (with tenure since 1/2002)
 Director of Visual Computing Laboratory
 Department of Computer Science, The University of Texas at Dallas.
1/2000 - 8/2000: Visiting Associate Professor
 Department of Computer Science, The University of Texas at Dallas.
1/1995 - 12/1999: Senior Lecturer in Computing (permanent)
 Department of Computing, Division of ICS,

Macquarie University, Sydney, New South Wales 2109, Australia

Lecturer in Computing
 Department of Computing, Division of ICS,
 Macquarie University, Sydney, New South Wales 2109, Australia

SERC Postdoctoral Research Fellow (funded for two years)
 The UK Science and Engineering Research Council (SERC),
 Department of Electrical and Electronic Engineering,
 University of Brighton, East Sussex, UK
 Waiting to start the SERC contract (20% success rate in obtaining
 SERC Postdoctoral Fellowships).
 Writing my PhD thesis at University of Brighton and submitted the thesis
 in September 1990.
 Successfully defended the thesis on 18 December 1990.

Research Assistant and Part-Time Tutor
 Dept. of Electrical and Electronic Engineering/IT Research Institute,
 University of Brighton, East Sussex, UK

Visiting Researcher
 SEAKE Center, University of Brighton, East Sussex, UK

Senior Software Engineer
 CAD Section, East-China Research Institute of Computer Technology,
 Shanghai, China

Software Engineer
 same institute as above.

Visiting Positions Held at

- Oregon State University, USA, 1-22 May 1994.
- University of Science and Technology of China, China, 10 September - 2 October 1994.
- University of Adelaide, Australia, 4 February - 17 March 1995.
- Griffith University, Australia, 19 March - 2 May 1995.
- University of Technology, Sydney, Australia, 3 May - 21 July 1995.
- University of Gent, Belgium, 9-19 September 1995.
- University of Linz, Austria, 23 September - 12 October 1995, 3-6 October 1997.
- City University of Hong Kong, Hong Kong, 2-10 May 1997.
- National University of Defense Technology, Changsha, China, 12-22 May 1997.
- Hong Kong Polytechnic University, Hong Kong, 5-14 August 1998, 28 September 1998 - 24 February 1999, 27 September - 2 December 1999, 29 April - 28 May 2004.
- State Key Laboratory for Novel Software Technology, Nanjing University, China, 25 July - 22 August 2001.
- Macquarie University, Sydney, Australia, 6-15 March 2002, 7 November - 2 December 2003.
- University of Sydney, Australia, 3-5 November 2003.
- Zhejiang University, China, 23 April - 3 June 2005.

Awards, Honors and Professional Memberships

Awards and Honors

- *Visiting Fellowship* to the UK, sponsored by Ministry of Education, China, 1985 (top 0.5% selected based on English test and Computer Science subject tests).
- *SERC Postdoctoral Research Fellowship*, Science and Engineering Research Council (SERC), UK, 1990 (top 20% applicants being awarded).
- *IICA/91 Travel Award*.
- *Visiting Professorship* to Nanjing University, sponsored by the State Key Laboratory for Novel Software Technology, Nanjing University, China, 2000 (special recognition).
- Nominated for the *Research Supervisor of the Year Award* in 1998, 1999 and 2000, at Macquarie University, Sydney, Australia.
- *Outstanding Service Award*, Erik Jonsson School of Computer Science and Engineering, University of Texas at Dallas, August 2003.
- *Chunhui Visiting Professorship* to Zhejiang University, awarded by the Ministry of Education, China, 2005-2006.

Professional Memberships

- Member of British Computer Society (MBCS, 6/1991-6/1992)
- Member of Association for Computing Machinery (MACM, 1992-1994)
- Member of The World Ocean and Transputer User Group (MWOTUG, 1988 - 1996)
- Member of the Association for Logic Programming (MALP, 1992-1993)
- Member of Australian Computer Society (ACS, 9/1998-12/2000)
- Member of the Institute of Electrical and Electronics Engineers (MIEEE, 6/1994-5/1997)
- Senior Member of the Institute of Electrical and Electronics Engineers (SMIEEE, 5/1997 -)

Funding for Original Investigation

1 was the Principal Investigator for all the following grants, except the ones indicated otherwise.

- 15,500 Pound Sterling per annum for 2 years, **The UK Science and Engineering Research Council, Postdoctoral Fellowship**, 1990.
- \$8,600, **Macquarie University Research Grant, A Generic Parallel Program Development Interface for Multiprocessor Applications**, 1992, (with Ray Offen).
- \$6,000, **DEET National Priority (Reserve) Fund Grant, Establishment of a Transputer Laboratory** (with the School matching grant of \$7,500), 1992.
- \$11,250, **Macquarie University Research Grant, Software Development Tools for Highly Parallel Computers**, 1993.
- \$10,000, **Macquarie University Research Grant, Graphical Reasoning for Animating Message-Passing Programs, and Using Relational Database for Performance Visualisation of Parallel Programs**, 1994.
- \$23,670, **Australian Research Council Small Grant, Visualising Parallel Program Execution on a Transputer Network**, 1994, 1995.
- \$10,000, **Macquarie University Research Grant, A Performance Tuning and Analysing Tool for Parallel Programming**, 1995, 1996.
- \$5,660, **Macquarie University Research Grant, Low Level Instrumentation for Monitoring Parallel Programs**, 1995.

- \$12,000, **Australian Research Council Infrastructure Mechanism A Grant**, 1995 (with M. Johnson, G.H. Rosmanith, and L.G. Haney).
- \$5,000, **Macquarie University Research Grant, Optimal Grouping of Distributed Monitoring Units**, 1996.
- \$24,734, **Australian Research Council Small Grant, Visual Programming for Heterogeneous Distributed Systems**, 1996, 1997.
- \$3,818, **Macquarie University Research Grant, Collaboration with Hong Kong and China**, 1997.
- \$9,516, **Australian Research Council Small Grant, Monitoring and Tuning the Performance of Parallel Programs**, 1997.
- \$8,500, **Macquarie University Research Grant, Using Reserved Graph Grammar to Develop a Visual Programming Tool**, 1998.
- \$10,019, **Australian Research Council Small Grant, Programming Tools for Parallel and Distributed Applications**, 1998.
- \$31,526, **Australian Research Council Small Grant, Foundations of Executable Temporal Logic**, 1998, 2000 (with M.A. Orgun).
- \$6,500, **Macquarie University Research Grant, Automatic Presentation of Multimedia Documents**, 1998.
- \$5,500, **Macquarie University Research Grant, Research Visit by Professor Margaret Burnett**, 1998.
- \$148,622, **Australian Research Council Large Grant** (equivalent to US NSF regular grants) *Generation of Visual Languages*, 1999-2002 (sole PI).
- \$62,240, **Australian Research Council/DETYA Strategic Partnerships with Industry - Research and Training Grant** (SPIRT, equivalent to US NSF GOAL), *Software Development and Maintenance Through Program Visualisation and Analysis*, 2000-2003 (with Youliang Zhong, Hypersoft).
- RMB115,000, **National Key Laboratory for New Software Technology**, Nanjing University, China, *Visiting Professorship*, 1999-2000.
- \$210,000, **National Science Foundation (ITR), Visual Specification and Automatic Transformation of Web Interchanging Documents**, Current: 09/01/02-08/31/05 (sole PI).
- HK\$28,000, **Hong Kong Polytechnic University, Hong Kong, China, Visiting Professorship**, 2003.
- \$51,000, **SUN Microsystems, Academic Excellence Grant**, USA, 2003 (sole PI).
- \$6,000, **National Science Foundation (REU), ITR - Research Experience for Undergraduates**: Current: 09/01/04-08/31/05 (sole PI).
- \$385,000, **National Science Foundation (CSEMS), Training Students in Software Engineering for the High Technology Workforce**, Current: 09/01/04-08/31/08 (PI: K. Zhang, Co-PIs: G. Gupta, D.T. Huynh, S. Ntafos, S. Kim).
- \$26,684, **National Science Foundation (HCI), Workshop: VLHCC'05 Doctoral Consortium**, Current: 06/01/05-05/31/06 (PI: K. Zhang).
- \$156,007, **Texas Technology Workforce Development Grant Program (TETC), UTD School of Engineering and Computer Science - TETC Undergraduate Expansion Program**, Current: 07/01/2005-06/30/2007 (PI: S. Ntafos, Co-PIs: J. Fonseka, K. Zhang).
- \$306,688, **US Department of Education (GAANN), Training Students for Research and Teaching Careers in Computer Science and Software Engineering**, Current: 09/01/2006-08/31/2009 (PI: G. Gupta, Co-PIs: K. Zhang, S. Ntafos, R. Mili, D.T. Huynh, S. Kim).

Teaching

Doctoral Advisement/Direction

Principal Supervisor/Advisor for

1. Kei-Chun Li, "An Intelligent Performance Advisor for Parallel Programming", **PhD** (graduated in 1997, now Lecturer at Hong Kong Institute of Education).
2. De-Qian Zhang, "Generation of Visual Languages", **PhD** (graduated in 1998, now with Corel).
3. Nenad Stankovic, "An Open Framework for Visual Parallel Programming in Java", **PhD**, (graduated in 2001, now Associate Professor at Aizu University, Japan).
4. Li-Yin Xue, "Consistency Maintenance in Distributed Real-Time Collaborative Editing Systems", **PhD**, (graduated in 2002, jointly with Dr Mehmet Orgun of Macquarie University).
5. Jun Kong, "Visual Programming Languages and Applications", **PhD**, (graduated in Fall 2005, now Assistant Professor at North Dakota State University).
6. Yu Qian, "Fast and Accurate Pattern Discovery in Spatial, Image, and Biological Data", **PhD**, (graduated in Spring 2006, now Senior Research Associate at University of Texas Southwestern Medical Center).
7. Guanglei Song, "A Graphical Framework for Model Management", **PhD**, (graduated in Summer 2006, now with Meta Integration Technology, Inc., Mountain View, CA).
8. Su Te Lei, "Visual Requirements Engineering", **PhD**, (expected 2007).
9. Kabin Zhang, "Parsing and Compiling Visual Language Programs", **PhD**, (expected 2008, jointly with Dr Mehmet Orgun of Macquarie University).
10. Keven Ates, "Visual Language Techniques for Image Processing", **PhD**, (expected 2008).
11. Pushpa S. Kumar, "Web Engineering for Mobile Devices", **PhD**, (expected 2009).
12. Chunying Zhao, "Model-Driven Software Engineering with Graph Transformation", **PhD**, (expected 2009).

Masters Advisement/Direction

1. Eddie Fan, "Performance Analyser for Occam Language", **MComp**, (completed in 1994).
2. Su Te Lei, "An Integrated Performance Tuning Tool for Parallel Programming", **MSc(Hons)**, (completed in 1994).
3. Nenad Stankovic, "Parallel Visual Programming", **MSc(Hons)**, (completed in 1996).
4. Zhengbin Yan, "Automatic User Interface Generator Based on Design Patterns", **MSc**, (completed in 1997).
5. Ke-Bing Zhang, "Incremental Layout for a Visual Language Generation System", **MSc(Hons)**, (completed in 2001).
6. Longde Yin, "A Customizable User-Interface", **Independent Study**, Fall 2000.
7. Jiaqin Yuan, "Visual Programming for Web Site Development and Maintenance", **Independent Study**, Fall 2000.
8. Xiaoli Zhang, "Literature Review of Visual Approaches to XML", **Independent Study**, Spring 2001.
9. Yulin Ma, "Visual Language Generation System and Applications", **Independent Study**, Spring 2001.
10. Ming Li, "Graphical Approach to Web Sites Development and Maintenance", **Independent Study**, Spring-Summer 2001.
11. Yi Rui, "Web Site Visualization and Re-engineering", **Independent Study**, Fall 2001.
12. Anand Edwin, "Human-Web Interface", **Independent Study**, Fall 2001-Spring 2002.
13. Meikang Qiu, "Web Information Transformation for PDA Applications", **Independent Study**, Fall 2002.
14. Gang Zhang, "Front-end User Interface for Spatial Data Mining", **Independent Study**, Summer-Fall 2003.
15. Ganesh Shanmuganathan, "Visual Slicing of Message-Passing Programs", **MS Thesis**, Fall 2003-Spring 2004.

16. Yi Jiu, "Spatial Clustering in DNA Micro-arrays", **Independent Study**, Spring 2004.
17. Fang Chen, "Spatial Graph Grammar Application in GIS", **Independent Study**, Spring 2004.
18. Karina Riel, "Clustering Biological Data Using FAÇADE", **Independent Study**, Spring-Summer 2005.
19. Janis Schubert, "Animation and Demonstration of Computer Graphics Algorithms", **Independent Study**, Fall 2005.
20. Todd Hsieh, "Music Visualization", **Independent Study**, Fall 2006.

Bachelors Honors Advisement/Direction

1. Su Te Lei, "Program Visualization for Coordinated Languages", **Honors Thesis**, 1993.
2. Paul English, "OR-Parallelism in Logic Programs and A Comparative Study", **Honors Thesis**, 1993.
3. Gaurav Marwaha, "Vispiter: A Visual Development Tool for Occam Programming on Multi-transporter Systems", **Honors Thesis**, 1994.
4. Greg Turner, "Investigations in A Parallel Programming Language Environment", **Honors Thesis**, 1996.
5. Keven Ates, "Multidimensional Data Clustering", **Honors Thesis**, 2004.
6. Royous Zacharias, "Automatic Translation Between XML Dialects Through Graph Transformation", **Honors Thesis**, 2004.
7. Vikram Srivastava, **BS Summer Project** (from IIT-Roorkee), "Clustering Approaches to Image Segmentation", Summer 05.
8. Kevin Weekly, **Clark Scholar Summer Project**, "Deep Web Data collection", Summer 05.
9. Kevin Moutrose, **Clark Scholar Summer Project**, "Computer Generated Arts", Summer 05.

Classroom Teaching

Since joining UTD, I have lectured the following courses:

1. CS2315 – C/C++
2. CS2325 – Assembler Course
3. CS5330 – Computer Science II (Computer Organization)
4. CS4361 – Computer Graphics
5. CS6366 – Computer Graphics
6. CS6359 – Object-Oriented Analysis and Design
7. CS7301 – Visual Programming
8. CS6v81-081 – Data Mining

The following lists the evaluations of the classes taught over the last three years

Semester	Number	Course Name	No. Res	IAS1	IAS2	IAS3	IAS4	IAS5	IAS6
Spr 2003	CS6366	Computer Graphics	20	3.8	3.6	3.9	3.8	3.6	4.1
Spr 2003	CS6v81	Independent Study	6						
Fall 2003	CS4361	Computer Graphics	25	3.1	3.0	2.6	2.7	3.0	3.1
Fall 2003	CS6v81	Independent Study	6						
Spr 2004	CS6366	Computer Graphics	20	3.4	3.3	3.9	3.6	3.6	4.2
Spr 2004	CS6v81	Independent Study	3						
Fall 2004	CS4361	Computer Graphics	25	3.5	3.4	3.8	3.2	3.5	3.9
Fall 2004	CS6v81	Independent Study	4						
Spr 2005	CS6366	Computer Graphics	28	3.8	4.0	4.2	3.9	3.5	4.3
Spr 2005	CS6v81	Independent Study	3						
Spr 2005	CS7301	Recent Advances in VP	14	3.9	3.9	4.4	4.0	3.8	4.3
Sum 2005	CS6366	Computer Graphics	10	3.5	3.5	3.8	3.8	3.3	4.7

Sum 2005	CS6v61	Data Mining	6	2.8	2.8	3.5	2.8	2.8	3.3
Fall 2005	SE4340	Computer Architecture	5	3.8	3.8	4.1	3.8	4.0	4.3
Spr 2005	CS6366	Computer Graphics	10	3.8	3.9	3.8	3.8	4.0	4.3
Dept Average			3.39	3.32	3.39	3.27	3.25	3.50	

IAS = Instructional Assessment System (for teaching evaluation):

- IAS1: "The course as a whole was:"
- IAS2: "The course content was:"
- IAS3: "The instructor overall was:"
- IAS4: "The instructor's contribution to your understanding of concepts/ideas:"
- IAS5: "Course organization was:"
- IAS6: "Opportunity to ask questions was:"

At Macquarie University in Australia, I created one course, coordinated 4 courses, and lectured the following courses:

1. Computing and Information Systems (1st year BSc/BA)
2. Fundamentals of Computer Science (1st year BSc, as coordinator)
3. Computer Architecture (2nd year BSc, as coordinator)
4. Prolog Programming (3rd year BSc)
5. Computer Graphics (3rd year BSc, as coordinator)
6. Parallel Programming/Processing (Master of Computing and P/G Diploma in Computing, and BSc Honors, as invetor and coordinator)
7. Advanced Computer Architecture (Master of Computing and P/G Diploma in Computing).

Results of teaching evaluation at Macquarie can be directly sent from Macquarie if required.

Professional Services

- Panelist on the US NSF (National Science Foundation) review panel in 2001, 2004.
- Assessor for Australian Research Council, Large Research Grants and Small Research Grants, 1994-1999.
- External Reviewer in the Review Committee of the Australian Transputer Center, University of Technology, Sydney, 1996.
- Reviewer for many journals including *IEEE Trans. Software Engineering*, *IEEE Trans. Systems, Man and Cybernetics*, *The Computer Journal*, *Automated Software Engineering*, *Annals of Software Engineering*, *Software - Practice and Experience*, *International Journal of Software Engineering and Knowledge Engineering*, *Journal of Visual Languages, Computing, Software and Systems Modeling*, *VLDB Journal*, *Journal of Software (软件学报)*, and *Sciences in China (中国科学)*.

Editorship:

- Book Reviews Editor and Editorial Board for *Journal of Visual Languages and Computing*, Academic Press, October 2001.
- Associate Editor for *International Journal of Software Engineering and Knowledge Engineering*, World Scientific, August 2006.
- Guest Editor for Special Issue on Multimedia and Web Design, *Multimedia Tools and Applications* (Kluwer), 2004.
- Guest Editor for Special Issue on SEKE'03, *International Journal of Software Engineering and Knowledge Engineering*, Vol.14, No.1, February 2004.

- Guest Editor for Special Volume on Software Visualization, *Annals of Software Engineering*, 2002.
- Guest Editor for Special Issue on Visual Methods and Tools for Distributed Software Development, *Journal of Visual Languages and Computing*, Vol.12, No.2, 2001.
- Guest Editor for Special Issue on Software Visualization, *Australian Computer Journal*, Vol. 27, No. 4, 1995.

General Chair of

- 2005 IEEE Symposium on Visual Languages and Human-Centric Computing, Dallas, USA, Sept. 2005.
- 2005 International Workshop on Visual Languages and Computing, Banff, Canada, Sept. 2005.

Program Chair of

- 2007 International Workshop on Visual Languages and Computing (VLC'07), San Francisco, USA, 6-8 September 2007.
- 18th International Conference on Software Engineering and Knowledge Engineering (SEKE'2006), San Francisco, USA, 5-7 July 2006.
- 2004 International Workshop on Multimedia and Web Design, Miami, USA, 13 December 2004.
- 2004 International Workshop on Visual Languages and Computing, San Francisco, USA, 8-10 September 2004.
- 2003 IEEE Symposium on Visual and Multimedia Languages: VL'2003 (part of HCC'2003), Auckland, New Zealand, 28-31 October 2003.
- 15th International Conference on Software Engineering and Knowledge Engineering (SEKE'2003), San Francisco, USA, 1-3 July 2003.
- International Symposium on Visual Methods for Parallel and Distributed Programming, London, UK, 25-27 July 2001.
- IEEE VL'2000 Workshop on Visual Methods for Parallel/Distributed Programming, Seattle, USA, 14 September 2000.
- 1st Australian Software Visualization Workshop, Sydney, 23-24 November 1995.

Mini-Track Co-Chair on Visual Interactions in the Software Technology Track, the 40th Hawaii International Conference on System Sciences (HICSS-40), Big Island, Hawaii, 3-6 January 2007.

Program Committee Member for

- 20th, 22nd, 23rd IEEE Symposium on Visual Languages and Human-Centric Computing: VL/HCC'04 (Rome, Italy), VL/HCC'06 (Brighton, UK), VL/HCC'07 (Coeur d'Alene, Idaho, USA)
- 9th-13th International Conference on Distributed Multimedia Systems: DMS'03 (Miami, USA), DMS'04 (San Francisco, USA), DMS'05 (Banff, Canada), DMS'06 (Grand Canyon, USA), DMS'07 (San Francisco, USA).
- IEEE International Conference on Information Reuse and Integration: IRI'05 (Las Vegas, USA), IRI'06 (Hawaii, USA), IRI'07 (Las Vegas, USA).
- 4th, 5th, 6th International Conference on Web-based Learning: ICWL'05 (Hong Kong, China), ICWL'06 (Penang, Malaysia), ICWL'07 (Edinburgh, UK).
- 3rd International Workshop and Symposium on Applications of Graph Transformation with Industrial Relevance (AGTIVE'07), Kassel, Germany, 10-12 October 2007.
- 8th ACSIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD 2007), Qingdao, China, 30 July - 1 August 2007.
- 2nd International Conference on Software and Data Technologies (ICSOFT'07), Barcelona, Spain, 22-25 July 2007

- 18th Australian Conference on Software Engineering (ASWEC'07), Melbourne, Australia, 10-13 April 2007.
 - Asia-Pacific Workshop on Visual Information Processing (VIP'06), Beijing, China, 7-9 November 2006.
 - 10th IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA'06), Honolulu, Hawaii, USA, 14-16 August 2006.
 - 8th International Working Conference on Advanced Visual Interfaces (AVI'06), Venezia, Italy, 23-26 May 2006.
 - 18th Asia Pacific Web Conference (APWeb'06), Harbin, China, 16-18 January 2006.
 - 3rd International Conference on Information Technology and Applications, Sydney, Australia, 4-7 July 2005.
 - 20th-21st Annual ACM Symposium on Applied Computing, Data Mining Track: SAC'2005 (Santa Fe, USA), SAC'2006 (Dijon, France).
 - 28th International Computer Software and Application Conference: COMPSAC'2004, Hong Kong, China, 27-30 September 2004.
 - 3rd, 5th International Conference on Quality Software: QSIQ'2003 (Beijing, China), QSIQ'2005 (Melbourne, Australia).
 - International Workshop on Visual Languages and Computing, Miami, USA, 24-26 September 2003.
 - 12th, 14th-16th IEEE Symposium on Visual Languages: VL'96 (Boulder, USA), VL'98 (Halifax, Canada), VL'99 (Tokyo, Japan), VL'00 (Seattle, USA).
 - 9th-18th International Conference on Software Engineering and Knowledge Engineering: SEKE'97 (Madrid, Spain), SEKE'98 (San Francisco, USA), SEKE'99 (Kaiserslautern, Germany), SEKE'00 (Chicago, USA), SEKE'01 (Buenos Aires, Argentina), SEKE'02 (Ischia, Italy), SEKE'03 (San Francisco, USA), SEKE'04 (Banff, Canada), SEKE'05 (Taiwan, ROC), SEKE'06 (San Francisco, USA).
 - 2nd-7th Australasian Conference on Parallel and Real-Time Systems: PART'95 (Fronantje), PART'96 (Brisbane), PART'97 (Newcastle), PART'98 (Adelaide), PART'99 (Melbourne), PART'00 (Sydney).
 - 8th-9th International Symposium on Languages for Intensional Programming: ISLIP'95 (Sydney, Australia), ISLIP'96 (Tampa, USA).
 - 1st-4th International Workshop on Cooperative Internet Computing: CIC'01, CIC'02, CIC'03, CIC'04 (Hong Kong, China).
 - 1st-3rd Software Visualization Workshop: SoftViz'95 (Sydney), SoftViz'97 (Adelaide), SoftViz'99 (Sydney).
 - International Symposium on Future Software Technology: ISFST'99 (Nanjing), ISFST'00 (Guiyang, China, 29 November-1 December 2000).
 - 5th International Conference on Computer Supported Cooperative Work in Design, Hong Kong, 3rd, 5th International Workshop on Advanced Parallel Processing Technologies: APPT'99 (Changsha, China), APPT'03 (Xianen, China).
 - 1st International Conference on Parallel Processing and Artificial Intelligence, London, UK, 17-18 July 1989.
- Organizing Committee member of ACSW'97** - Australasian Computer Science Week: ACSC'97, CATS'97, and ACAC'97, Sydney, Australia, 3-7 February 1997.
- Steering Committee Member of Australasian SoftVis Consortium, 1997-2000.**

University Services

- Member of Search Committee for GIS Program Head, 2006-2007.

- Member of *Ad Hoc* Committee for Granting of Tenure and Promotion for a Physics faculty and a GIS faculty, UTD, 2005/9 – 2006/4.
- Member of Physics Program Review Committee, UTD, 2007/3/21-23.

Department and School Services

- Associate Head, CS Department, UTD, 2006/1 -.
- Chair of Ph.D. Committee, CS Department, UTD, 2006/1 -.
- Coordinator, Computer Systems Group, CS Department, 2004/10 – 2006/11.
- Co-Chair, Graduate Recruiting Committee, Industrial Advisory Board Executive Committee, Erik Jonsson School of ECS, 2006/9 -.
- Member (Ex Officio) of TAVRA Committee, CS Department, UTD, 2006/1 -.
- Member of *Ad Hoc* Committee for Granting of Promotion to Professor for a CS faculty, UTD, 2006/9 – 2007/4.
- Member of *Ad Hoc* Committee for Granting of Tenure and Promotion for a CS faculty, UTD, 2005/9 – 2006/4.
- Chair of *Ad Hoc* Committee for Mid-Probationary Review of a faculty member, UTD, 2004/9.
- Chair of the MS Admission Committee, CS Department, UTD, 2003/10 – 2006/1.
- Chair of the Graduate Committee, CS Department, UTD, 2001/10 - 2006/1.
- Member of the School Personnel Review Committee, Erik Jonsson School of Engineering and Computer Science, UTD, 2002/9 -2008/5.
- Member of the Graduate Committee, CS Department, UTD, 2000/9 – 2001/9.
- Member of the Search Committee, Division of SES, CS Department, UTD, 2001/9.
- Convener of the Departmental seminar series, Macquarie University, 1993.
- Member of Selection Committee for two Part-Time Associate Lecturers in Computing, Macquarie University, 1994.
- Member of Selection Committee for the new Chair of Computing, Macquarie University, 1997.
- Member of Selection Committee for the Microsoft Chair, Macquarie University, 1999.

External Theses Examiner for:

1. N.R. Pearson, General Purpose Parallelizing Compiler for Sequential Code, MAppSci Thesis, The University of Technology, Sydney, May, 1993.
2. G.M. Nam, Class-Library Management System for Object-Oriented Programming, MCompSc Thesis, The University of New South Wales, Sydney, July, 1993.
3. Xianwu Ma, A Design and Analysis Aid Environment for Parallel Computation, PhD Thesis, The University of Technology, Sydney, January, 1994.
4. H.K. Tan, Visual Programming Tools for Parallel Programming, MASc Thesis, Nanyang Technological University, Singapore, January, 1996.
5. Ka Kin Lau, Parallel Execution of Compute-Intensive Numerical Problems on Distributed Computers, MSc Thesis, Curtin University of Technology, Western Australia, March 1997.
6. Jinrong Ouyang, Supporting Cost-Effective Fault Tolerance in Distributed Applications with File Operations, PhD Thesis, University of New South Wales, Sydney, July 1997.
7. Hendra Widjaja, VISOR++: A Software Visualization Tool for Task-Parallel Object-Oriented Programs, MAppSci Thesis, University of Adelaide, Adelaide, September 1997.
8. Chunxiao Li, VIP Image: An Object-Oriented Image Processing Toolkit, MCompSc Thesis, University of New South Wales, Sydney, October 1997.
9. Lei Hu, Performance-Based Design Tools for Parallel Software Systems, PhD Thesis, University of New South Wales, Sydney, April 1998.

10. Sitt Sen Chok, Automatic Construction of User Interfaces for Pen-based Computers, **PhD** Thesis, Monash University, Melbourne, August 1998.
11. Maolin Huang, Online Information Visualization of Huge Data Spaces, **PhD** Thesis, University of Newcastle, NSW, July 1999.
12. Yan Gu, JBSP: A BSP Programming Library In Java, MASC Thesis, Nanyang Technological University, Singapore, October 1999.
13. Kee Ping Ho, Behavior and Autonomous Agents for Computer Animation, **MEng** Thesis, Nanyang Technological University, Singapore, June 2001.
14. William Hock Oon Lai, An Investigation Into Enhancing Proxy Services for Caching Continuous Media in Best-Effort Network Environment, **PhD** Thesis, Curtin University of Technology, October 2002.
15. Keith Nesbitt, Designing Multi-Sensory Displays for Abstract Data, **PhD** Thesis, University of Sydney, February 2003.
16. Wanchun Li, Navigating Clustered Graphs, **MSc** Thesis, University of Sydney, March 2005.
17. Xiaohang Ma, Intelligent Image Retrieval Systems Using Soft Computing Techniques, **PhD** Thesis, La Trobe University, Australia, June 2005.
18. Quang Vinh Nguyen, Space-Efficient Visualization of Large Hierarchies, University Technology Sydney, **PhD** Thesis, July 2005.
19. Wu Quan, Fused Visualization of Complex Information Spaces, **PhD** Thesis, University Technology Sydney, **PhD** Thesis, August 2006.

Theses Examining Committee at the University of Texas at Dallas for:

- Janet May Six, Vistool: A Tool for Visualizing Graphs, **PhD**, October 2000 (Advisor: Yanni Tollis).
- Ahamed M. Jemal, Towards Distributed, Collaborative Computing Paradigm: An Experimental Approach, **MS**, April 2001.
- Prady Prasad, A Mobile Agent Simulator, **MS**, March 2002 (Advisor: Rym Mili).
- Vinay Ahuja, Strategies for RoboCup Soccer, **MS**, July 2003 (Advisor: Gopal Gupta).
- Mihir Vaidya, Framework for Multimodal Rich-Presence Systems, **MS**, April 2004 (Advisor: B. Prabhakaran).
- Feng Luo, Mining Gene Micro-array Expression Profiles, **PhD**, June 2004 (Advisor: Latifur Khan).
- Siew Kuok Hoon, A Dual-Output Single Inductor DC/DC Boost Converter for Portable Power Management Backlight Application, **PhD**, November 2004, (Advisor: Franco Maloberti).
- Tomohiro Yoshizawa, User Interface Techniques for Browsing and Searching, **PhD**, November 2004 (Advisor: Haim Schweitzer).
- Krishna Rangarajan, 3D Search, **MS**, November 2004 (Advisor: B. Prabhakaran).
- Peng Li, The Preference Update Framework for Web and E-Commerce Applications, **PhD**, March 2005 (Advisor: I-Ling Yen).
- Dongfeng Wang, Systematic Development of Process-Control Systems for Ultra-High Dependability Assurance Based on Independently Developable End-User Assessable Logical (IDEAL) Aspects, **PhD**, June 2005 (Advisor: F. Bastani).
- Zili Shao, High Performance, Low Power and Secure Embedded Systems, **PhD**, June 2005 (Advisor: E. H-M. Sha).
- Korosh Gohabi, Updated Firewall Policy Rules Using Association Rule Mining (UFARM), **MS**, July 2005 (Advisor: L. Khan).
- Gaurav Pradhan, Indexing and Compression of Multi-Attribute, Variable Length, Multi-Dimensional Motion Data, **MS**, July 2005 (Advisor: B. Prabhakaran).
- Yiyang Tang, Design and Implementation of Embedded Systems on Digital Signal Processor, **PhD**, November 2005 (Advisor: Y. Wang).

- Srinivas Rajagopalan, Reduction of Search Space for Collision Deduction in Animation Authoring Environments, **MS**, November 2005 (Advisor: B. Prabhakaran).
- Meilin Liu, Nest-Loop Transformation techniques Considering Timing and Memory Optimization for Embedded Systems, **PhD**, March 2006 (Advisor: E.H-M. Sha).
- Jian Liu, Pattern-Directed Code Synthesis for Component Based Software Engineering, **PhD**, July 2006 (Advisor: F. Bastani).
- Feng Wu, Contributions to Real Time Shape Detection with Applications to Face Detection, **PhD**, July 2006 (Advisor: H. Schweitzer).
- Renee Steiner, Engineering Open Environments for Multi-Agent Simulation Systems, **PhD**, November 2006, (Advisor: R. Mili).
- Anur Prakash, November 2006 (Advisor: B. Prabhakaran).

Invited talks at:

- Johannes Kepler University Linz, Austria.
- University of Victoria, Canada.
- Macquarie University, Australia.
- University of Sydney, Australia.
- University of Adelaide, Australia.
- Griffith University, Australia.
- University of New South Wales, Australia.
- CSIRO, Canberra Laboratory, Australia.
- University of Gent, Belgium.
- Anhui Normal University, China
- Beijing University, China
- East-China University of Technology, China
- Hohai University, China
- Harbin Institute of Technology, China.
- Nanjing University, China.
- National University of Defense Technology, China,
- Southeastern University, China.
- Suzhou University of Science and Technology, China,
- University of Science and Technology of China, China.
- Zhejiang University, China.
- Hong Kong Polytechnic University, Hong Kong.
- Lawrence Berkeley National Laboratory, USA
- SAP Research Institute (SRI) International, USA,
- SAP Research, Alto Palo, USA,
- Southern Methodist University, USA,
- University of Texas at Dallas, USA,
- University of Texas at San Antonio, USA,
- University of Texas at Arlington, USA,
- University of Texas Southwestern Medical Center at Dallas, USA.

HOBBIES

Practice of Chinese calligraphy, seal carving, industrial design and oil painting. Obtained prizes and awards at provincial level for Chinese calligraphy and oil painting. Swimming (backstroke and breaststroke medalist at university level). Playing badminton and table tennis. Playing go and bridge.

PUBLICATIONS

Books

1. P. Eades and K. Zhang (Eds.), *Software Visualisation*, Series on Software Engineering and Knowledge Engineering, Vol.7, World Scientific Publishing Co., Singapore, 1996, ISBN: 981-02-2826-0, 268 pages.
2. K. Zhang (Ed.), *Software Visualization - From Theory to Practice*, Kluwer Academic Publishers, Boston, April 2003, ISBN: 1-4020-7448-4, 568 pages.
3. L. Anmeraal and K. Zhang, *Computer Graphics for Java Programmers*, Second Edition, John-Wiley & Sons, ISBN: 978-0-470-03160-5, March 2007, 376 pages.
4. K. Zhang, *Visual Languages and Applications*, Springer-Verlag, ISBN-10: 0-387-29813-4 & ISBN-13: 978-0-387-29813-9, April 2007, 246 pages.

Chapters in books

1. K. Zhang, *Modeling Message-Passing Programs with Meta Logic Programming*, in E.A. Yfantis (Ed.), *Intelligent Systems - Series D: System Theory, Knowledge Engineering and Problem Solving*, Kluwer Academic Publishers, Dordrecht, The Netherlands, 1995, ISBN: 0-7923-3422-1, 261-273.
2. K-C. Li and K. Zhang, *Instrumenting Parallel Programs Based on a Logical Clock Approach*, in E. D'Hollander, et al. (Eds.) *Parallel Computing: State-of-the-Art and Perspectives*, North-Holland (Elsevier), Amsterdam, 1995, 513-520.
3. J. Cao, L. Fernando, and K. Zhang, *Distributed Programming Based on Graphs*, in M.A. Orgun and E.A. Ashcroft (Eds.), *Intensional Programming I*, World Scientific Publishing Co., Singapore, January 1996, ISBN: 981-02-2400-1, 83-95.
4. D-Q. Zhang, K. Zhang, and J. Cao, *Visual Programming for Heterogeneous Distributed Systems*, in P. Eades and K. Zhang (Eds.), *Software Visualisation*, Series on Software Engineering and Knowledge Engineering, Vol. 7, World Scientific Publishing Co., Singapore, 1996, ISBN: 981-02-2826-0, 163-182.
5. K. Zhang, *Graphics-Aided Parallel Programming*, in J.H. Sun et al. (Eds.), *Science and Technology - Advancing Into The New Millennium*, People's Education Press, Beijing, August, 1999, ISBN: 7-107-13208-3, English:154-161, Chinese:492-502.
6. Y. Zhang and K. Zhang, *Associative Query for Multi-version Web Documents*, in M. Gergatsoulis and P. Rondogiannis (Eds.), *Intensional Programming II*, World Scientific Publishing Co., Singapore, 2000, ISBN: 981-02-4095-3, 55-64.
7. J. Cao, A. Cham, and K. Zhang, *Programming Dynamically Reconfigurable Web Server Groups Using the DyGOP Model*, in M. Gergatsoulis and P. Rondogiannis (Eds.), *Intensional Programming II*, World Scientific Publishing Co., Singapore, 2000, ISBN: 981-02-4095-3, 65-77.
8. K. Zhang, W. Cai, N. Stankovic, and M.A. Orgun, *Visual Parallel Programming*, in S.K. Chang (Ed.), *Handbook of Software Engineering and Knowledge Engineering*, World Scientific Publishing Co., Singapore, May 2002, ISBN: 981-02-4974-8, 102-130.

9. J. Dong and K. Zhang, *Design Pattern Compositions in UML*, in K. Zhang (Ed.), *Software Visualization - From Theory to Practice*, Kluwer Academic Publishers, Boston, April 2003, ISBN: 1-4020-7448-4, 287-308.
10. K. Zhang and K.B. Zhang, *Graph Grammars for Visual Programming*, in K. Zhang (Ed.), *Software Visualization - From Theory to Practice*, Kluwer Academic Publishers, Boston, April 2003, ISBN: 1-4020-7448-4, 3-27.
11. W. Lai, M. Huang, and K. Zhang, *Generating and Adjusting Web Sub-Graph Displays for Web Navigation*, in M. Mohammed (Ed.), *Intelligent Agents for Data Mining and Information Retrieval*, Ideal Group Publishing, Hershey, PA, 2004, ISBN: 1-59140-194-1.
12. K. Zhang, J. Kong, and J. Cao, *Visual Software Engineering*, to appear in B. Wah (Ed.) *Encyclopedia of Computer Science and Engineering*, Wiley & Sons, 2006.

Journal papers (published or accepted):

1. K. Zhang and B. Wilkinson, *Towards a Virtual Dataflow-based Prolog Machine*, *International Journal of Computer Systems Science and Engineering*, Vol.4, No.2, April 1989, Butterworths, 97-106.
2. K. Zhang and R. Thomas, *A Dataflow Prolog Execution Model and Its Architectural Support*, *Microprocessing and Microprogramming*, 33, 1991, North-Holland, 119-130.
3. K. Zhang and R. Thomas, *DIALOG - A Dataflow Model for Parallel Execution of Logic Programs*, Accepted by *The Computer Journal*, Oxford University Press, but published in *Future Generation Computer Systems*, Vol.6, No.4, September, 1991, North-Holland, 373-388.
4. K. Zhang, *An Experiment with A Logic Program Execution Model on the Transputer*, *International Journal of High Speed Computing*, Vol.4, No.3, September, 1992, World Scientific, 233-249.
5. K. Zhang, *Exploiting OR-Parallelism in Logic Programs: A Review*, *Future Generation Computer Systems*, Vol.9, No.3, September 1993, North-Holland, 259-280. Also as Technical Report, 92-121C: "Exploiting OR-Parallelism in Logic Programs: A Survey", School of MPCE, Macquarie University, December 1992.
6. K. Zhang and G. Marwaha, *Visputer - A Graphical Visualisation Tool for Parallel Programming*, *The Computer Journal*, Vol.38, No.8, 1995, Oxford University Press, 658-669.
7. K-C. Li and K. Zhang, *A Performance Adviser for the Development of Parallel Programs*, *International Journal of High Speed Computing*, Vol.8, No.3, September, 1996, World Scientific, 205-227.
8. S. Lei, K. Zhang, and K-C. Li, *Experience with the Design of a Performance Tuning Tool for Parallel Programs*, *The Journal of Systems and Software*, Vol.39, No.1, October 1997, Elsevier Science Inc., New York, 27-37.
9. K. Zhang and D.Q. Zhang, *Instrumenting Parallel Programs for Performance Visualisation*, *The Australian Computer Journal*, Vol.30, No.1, February 1998, Australian Computer Society Inc., 30-38.

10. J. Cao, K. Zhang, and O. de Vel, **On Heuristics for Optimal Configuration of Hierarchical Distributed Monitoring Systems**, *The Journal of Systems and Software*, Vol.43, No.3, 1998, Elsevier Science Inc., New York, 197-206.
11. K.-C. Li and K. Zhang, **Supporting Scalable Performance Monitoring and Analysis of Parallel Programs**, *The Journal of Supercomputing*, Vol.13, No.1, 1999, Kluwer Academic Publishers, 5-31.
12. W. Cai, K. Zhang, S. Turner, and C. Sun, **Interlock Avoidance in Transparent and Dynamic Parallel Program Instrumentation Using Logical Clocks**, *Parallel Computing*, (25)5, Elsevier Science, 1999, 569-591.
13. K. Zhang, X. Ma, and T. Hintz, **The Role of Graphics in Parallel Program Development**, *Journal of Visual Languages and Computing*, Vol.10, No.3, Academic Press, June 1999, 215-243.
14. N. Stankovic and K. Zhang, **Visual Programming for Message-Passing Systems**, *International Journal of Software Engineering and Knowledge Engineering*, Vol.9, No.4, 1999, World Scientific, 397-423.
15. N. Stankovic and K. Zhang, **An Evaluation of Java Implementation of Message-Passing**, *Software - Practice and Experience*, Vol.30, No.7, June 2000, John Wiley and Sons, 741-763.
16. K. Zhang and N. Gorla, **Locality Metrics and Program Physical Structures**, *The Journal of Systems and Software*, Vol.54, No.2, 2000, Elsevier Science Inc., New York, 159-166 (an earlier version published in *Proc. APSEC99 - Asia-Pacific Software Engineering Conference*, Takamatsu, Japan, 8-10 December 1999).
17. J. Cao, G. Bennett, and K. Zhang, **Direct Execution Simulation of Load Balancing Algorithms With Real Workload Distribution**, *The Journal of Systems and Software*, Vol.54, No.3, 2000, Elsevier Science Inc., New York, 227-237.
18. K. Zhang, D.-Q. Zhang, and J. Cao, **Design, Construction, and Application of a Generic Visual Language Generation Environment**, *IEEE Transactions on Software Engineering*, Vol.27, No.4, April 2001, 289-307.
19. G. Wirtz and K. Zhang, **Visual Methods for Parallel and Distributed Programming**, *Journal of Visual Languages and Computing*, Vol.12, No.2, April 2001, Academic Press, 123-125.
20. N. Stankovic, D. Kranzmueller, and K. Zhang, **The PCG: An Empirical Study**, *Journal of Visual Languages and Computing*, Vol.12, No.2, April 2001, Academic Press, 203-216.
21. K. Zhang and G. Wirtz, **Issues in Visual Parallel and Distributed Program Development**, *Journal of Visual Languages and Computing*, Vol.12, No.2, April 2001, Academic Press, 217-220.
22. D.-Q. Zhang and K. Zhang, and J. Cao, **A Context-Sensitive Graph Grammar Formalism for the Specification of Visual Languages**, *The Computer Journal*, Vol.44, No.3, 2001, Oxford University Press, 186-200.
23. C. Liu, M.A. Orgun, and K. Zhang, **A Parallel Execution Model for Chronolog**, *International Journal of Computer Systems Science and Engineering*, Vol.16, No.4, July 2001, 215-228.

24. K. Zhang, D.-Q. Zhang, and Y. Deng, **Graphical Transformation of Multimedia XML Documents**, *Annals of Software Engineering*, Vol.12, No.1, December 2001, Kluwer, 119-137.
25. N. Stankovic and K. Zhang, **A Distributed Parallel Programming Framework**, *IEEE Transactions on Software Engineering*, Vol.28, No.5, May 2002, 478-493.
26. J. Cao, A.T.S. Chan, Y. Sun, and K. Zhang, **Dynamic Configuration Management in Graph-Oriented Distributed Programming Environment**, *Science of Computer Programming*, Vol.48, No.1, July 2003, Elsevier Science Inc., New York, 43-65.
27. K.-C. Li and K. Zhang, **Teaching Computer Data Transfer Principles Through Simulation and Animation**, *Journal of Applied Systems Studies*, Cambridge International Science Publishing, (in press).
28. K. Zhang, **Book Review: Improvisational Design by Suguru Ishizaki**, MIT Press, 2003, ISBN: 0-262-09035-X, *Journal of Visual Languages and Computing*, Vol.14, No.3, Elsevier Science Inc., New York, 495-497.
29. K. Zhang, **Guest-Editor's Introduction**, Special Issue on Best Papers of SEKE'03, *International Journal of Software Engineering and Knowledge Engineering*, Vol.14, No.1, February 2004, World Scientific, 1-2.
30. J. Cao, Y. Liu, Li Xie, B. Mao and K. Zhang, **The Design and Implementation of A Run-Time System for Graph-Oriented Parallel and Distributed Programming**, *The Journal of Systems and Software*, Vol.72, No.3, August 2004, Elsevier Science Inc., New York, 389-399.
31. K. Zhang, J. Kong, M.K. Qiu, and G.L. Song, **Multimedia Layout Adaptation Through Grammatical Specifications**, *ACM/Springer Multimedia Systems*, Vol.10, No.3, March 2005, 245-260.
32. F. Chan, J. Cao, A.T.S. Chan, and K. Zhang, **Visual Programming Support for Graph-Oriented Parallel/Distributed Processing**, *Software - Practice and Experience*, Vol.35, No.15, December 2005, John Wiley and Sons, 1409-1439.
33. X. Zeng, Y. Wang, and K. Zhang, **Computation of Adalines' Sensitivity to Weight Perturbation**, *IEEE Transactions on Neural Networks*, Vol.17, No.2, March 2006, 515-519.
34. M.K. Qiu, K. Zhang, and M.L. Huang, **Usability in Mobile Interface Browsing**, *Web Intelligence and Agent Systems - An International Journal*, Vol.4, No.1, 2006, IOS Press, 43-59.
35. J. Kong, K. Zhang, and X. Zeng, **Spatial Graph Grammars for Graphical User Interfaces**, *ACM Transactions on Computer-Human Interaction*, Vol.13, No.2, June 2006, 268-307.
36. K. Zhang, **Introduction: Special Issue on Selected and Expanded Papers from MWD'04, 13 December 2004 in Miami, Florida, in Conjunction with MSE'04, Multimedia Tools and Applications**, Vol. 29, 2006, Springer, 5-6.
37. G.L. Song, J. Kong, and K. Zhang, **Easing Model Management Through Two Levels of Abstraction**, *Journal of Visual Languages and Computing*, Vol.17, No.6, 2006, Elsevier Science Inc., New York, 508-527. Initial version in *Proc. VL/HCC'05 Workshop on Visual Modeling for Software Intensive Systems*, Dallas, USA, 24 September 2005.

38. Q.V. Nguyen, M.L. Huang, and K. Zhang, **A Focus-Context Visualization Technique Using Semi-transparency**, *International Journal of Pervasive Computing and Communications*, Troubador Publishing, 2005 (accepted).

39. M.A. Orgun, L. Xue, and K. Zhang, **A Multi-Versioning Scheme for Intention Preservation in Collaborative Editing Systems**, *The Journal of Collaborative Computing*, Springer, 2006 (accepted).

40. J. Dong, Y. Sun, S. Yang, and K. Zhang, **Dynamic Web Service Composition Based on OWL-S**, *Science in China F: Information Sciences*, Vol.49, No.6, December 2006, Science Press/Springer-Verlag, 843-863.

41. K. Zhang, **Book Review: Aesthetic Computing** edited by Paul Fishwick, MIT Press, 2006, ISBN 0-262-06250-X, *Journal of Visual Languages and Computing*, 2007, Elsevier Science Inc., New York (in press).

42. K. Zhang, **From Abstract Painting to Information Visualization**, *IEEE Computer Graphics and Applications*, 2007 (to appear).

43. Y. Qian, F. Qiu, and K. Zhang, **Visualization Informed Noise Removal and Its Application in Processing High Spatial Resolution Remote Sensing Imagery**, *Computers and Geosciences*, 2007 (to appear).

Journal papers (Submitted)

- a. J. Dong, S. Yang, and K. Zhang, **Tracing Design Patterns in Their Applications and Compositions**, *IEEE Transactions on Software Engineering*, December 2006 (under minor revision after 2nd review).

Magazine and Chinese journal papers:

1. K. Zhang, **Automatic Identification and Cutting of Feedback Loops in PCB Systems**, *Computer Engineering*, No.5, 1985, 20-23 (in Chinese).
2. K. Zhang, **Prolog with Interactive Graphics for CAL**, *Programmed Learning and Educational Technology*, Vol.24, No.2, May, 1987, Kogan Page, UK, 122-127.
3. K. Zhang, **A Concurrent Programming Language for Multiprocessor Systems**, *Computer Engineering*, No.2, 1989, 30-37 (in Chinese).
4. K. Zhang, **A Review of AND-Parallelism and Combined AND/OR-Parallelism in Logic Programs**, *ACM SIGPLAN Notices*, Vol.29, No.2, February 1994, ACM Press, 25-32. Full paper as Technical Report, 93-129C: "Exploiting AND-Parallelism and Combined AND/OR-Parallelism in Logic Programs: A Survey", School of MPCE, Macquarie University, June 1993, 23 pages.

Refereed international conference papers (published or accepted):

1. K. Zhang and R. Thomas, **A Non-Shared Binding Scheme for Parallel Prolog Implementation**, in J. Mylopoulos and R. Raiter (Eds.), *Proc. 12th International Joint Conference on Artificial Intelligence (IJCAI'91)*, Sydney, Australia, 24-30 August 1991, Morgan Kaufmann, 877-882.

2. K. Zhang, **Meta Logic Programming for Modeling Message-Passing Parallel Programs**, *Proc. 2nd International Conference on the Practical Application of Prolog*, London, UK, 27-29 April, 1994 (poster). Full paper as Technical Report, 93-137C: **Meta Logic Programming for Modeling Message-Passing Parallel Programs**, School of MPCE, Macquarie University, October 1993, 13 pages.
3. K. Zhang and G. Marwaha, **Visputer - An Occam Program Visualisation Tool**, *Proc. 1994 ACM Symposium on Applied Computing*, Phoenix, USA, 6-8 March 1994, ACM Press, 457-461.
4. G. Marwaha and K. Zhang, **Parallel Program Visualisation for a Message-Passing System**, *Proc. 13th Annual IEEE International Phoenix Conference on Computers and Communications*, Phoenix, USA, 12-15 April 1994, IEEE Press, 200-205.
5. K. Zhang and W. Ma, **Graphical Assistance in Parallel Program Development**, *Proc. 1994 IEEE Symposium on Visual Languages (VL'94)*, St. Louis, USA, 4-7 October 1994, IEEE CS Press, 168-170.
6. S. Lei and K. Zhang, **Performance Visualisation of Message-Passing Programs Using Relational Approach**, *Proc. 7th International Conference on Parallel and Distributed Computing Systems (PDCS'94)*, Las Vegas, USA, 6-8 October, 1994, ISCA Publisher, 740-745.
7. S. Lei and K. Zhang, **Performance Tuning of Message-Passing Programs Through Visual Analysis**, *Proc. 1994 International Conference on Parallel and Distributed Systems (ICPDS'94)*, Taiwan, 19-21 December, 1994, IEEE CS Press, 730-735.
8. C. Liu, M.A. Orgun, and K. Zhang, **A Framework for Exploiting Parallelism in Chronolog**, in V.L. Narasimhan (Ed.) *Proc. 1st IEEE International Conference on Algorithms and Architectures for Parallel Processing (ICAPP'95)*, Brisbane, Australia, 19-21 April, 1995, IEEE Press, 153-162.
9. S. Lei and K. Zhang, **A Software Instrumentation Technique for Monitoring Message-Passing Programs**, in V.L. Narasimhan (Ed.) *Proc. 1st IEEE International Conference on Algorithms and Architectures for Parallel Processing (ICAPP'95)*, Brisbane, Australia, 19-21 April 1995, IEEE Press, 595-598.
10. D.Q. Zhang and K. Zhang, **A Visual Programming Environment for Distributed Systems**, in V. Haarslev (Ed.) *Proc. 1995 IEEE Symposium on Visual Languages (VL'95)*, Darmstadt, Germany, 6-9 September 1995, IEEE CS Press, 310-317.
11. J. Cao, K. Zhang, O. de Vei, and L. Shi, **Optimal Configuration of Distributed Monitoring Systems**, in A. Elmaghraby and R. Ammar (Eds.) *Proc. 8th International Conference on Parallel and Distributed Computing Systems (PDCS'95)*, Orlando, USA, 21-23 September, 1995, ISCA Publisher, 351-356.
12. J. Cao, F. Fernando, and K. Zhang, **DIG: A Graph-Based Construct for Programming Distributed Systems**, in S. Sahni, V.K. Prasanna, and V.P. Bhakar (Eds.) *Proc. 2nd International Conference on High Performance Computing (HiPC'95)*, New Delhi, India, 27-30 December 1995, McGraw-Hill, 417-422.
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12. K. Zhang, J. Cao, and K.-C. Li, Hierarchical Configuration of Monitoring Units on n-Cube Distributed Systems, In: M.V. Zelkowitz and P.A. Straub (Eds.) *Proc. SCC'96 - The XVI International Conference of the Chilean Computer Science Society*, Valdivia, Chile, 13-15 November 1996, 245-256.
13. K.-C. Li and K. Zhang, STAMP: A Stopwatch Approach for Monitoring Performance of Parallel Programs, *Proc. PART'96 - 3rd Australasian Conference on Parallel and Real-Time Systems*, Brisbane, Australia, 30 September - 1 October 1996, 211-219.
14. Z.-B. Yan and K. Zhang, A Visual Programming Tool for User Interface and Web Page Generation, In: J. Chen, et al. (Eds.) *Proc. TOOLS Asia'98 - 27th International Conference on Technology of Object-Oriented Languages and Systems*, Beijing, China, 22-25 September 1998, IEEE Computer Society Press, ISBN 0-8186-9096-8, 181-185.

15. K. Zhang, B.L. Liong, and J. Cao, Toward A Visual Approach to Web Design, Navigation, and Maintenance, *Proc. APWeb'99 - Asia Pacific Web Conference 1999*, Hong Kong, China, 27-29 September 1999.
 16. L. Xue, M. Orgun, and K. Zhang, A Multi-Versioning Algorithm for Intention Preservation in Distributed Real-Time Group Editors, *Proc. ACSC'2003 - 26th Australasian Computer Science Conference*, Adelaide, Australia, 4-7 February 2003.
 17. K.B. Zhang, M.A. Orgun, and K. Zhang, Compiled Visual Programs by VisPro, *Proc. VIP'2003 - Pan-Sydney Area Workshop on Visual Information Processing*, Sydney, Australia, Dec 9th, 2003.
- PhD thesis:**
2. K. Zhang, DIALOG: A Dataflow Interpretation Approach to Logic Programs, *Ph.D. Thesis*, University of Brighton, UK, December 1990.
- Unrefereed conference/workshop contributions:**
- a. K. Zhang, Preprocessor of Digital Testing Pattern Automatic Generation and Logic Simulation, *Proc. 3rd National Conference on Design Automation of Digital Systems*, Yantai, China, 1984 (in Chinese).
 3. K. Zhang, Computer Animation, *Proc. National Conference on Computer-Aided Design and Computer Graphics*, Yantai, China, 1985 (in Chinese).
 4. K. Zhang and R. Thomas, DIALOG - A Logic Program Execution Model Based on Dataflow Computation, *Proc. BCS Workshop on Abstract Machine Models for Highly Parallel Computers*, Leeds, UK, 25-27 March 1991, 35-38.
 5. K. Zhang, Modeling Concurrent Programs with Meta Logic Programs, *Australian Winter School in Computer Science on Parallel Computing*, Magnetic Island, 3-6 July 1993.
 6. K. Zhang and G. Marwaha, The VISPUTER Approach to Visualising Occam Programs, *Proc. Workshop on Software Engineering for Parallel Systems*, Wollongong, Australia, 7 October 1993.
 7. K. Zhang, Visualisation of Message-Passing Programs, *Workshop on Information Visualisation*, University of Newcastle, 14-15 March 1994.
 8. D.-Q. Zhang, S. Lei, and K. Zhang, An Object-Oriented Visual Dataflow Language, *Proc. 7th International Symposium on Lucid and Intensional Programming*, Menlo Park, California, USA, 26-27 September, 1994, 106-112.
 9. K. Zhang and D.-Q. Zhang, Program Visualisation and Visual Programming for Parallel and Distributed Systems, In: K. Zhang (Ed.) *1995 Software Visualisation Workshop*, Sydney, 23-24 November, 1995.
 10. D.-Q. Zhang and K. Zhang, Visual Programming: Graph Grammar and Tools, In: C. Marlin (Ed.) *Proc. 1997 Software Visualisation Workshop*, Adelaide, Australia, 11-12 November 1997, ISBN 0-7258-0630-3, 61-67.

11. N. Stankovic and K. Zhang, **Graphical Composition and Visualisation of Message-Passing Programs**, In C. Marlio (Ed.) *Proc. 1997 Software Visualisation Workshop*, Adelaide, Australia, 11-12 November 1997, ISBN 0-7258-0630-3, 35-40.
12. N. Stankovic and K. Zhang, **Java Based Parallel Processing on the Internet**, *First International Workshop on Web Engineering, WWW7 Conference*, Brisbane, Australia, 14 April, 1998.
13. K.B. Zhang and K. Zhang, **An Incremental Approach to Graph Layout Based on Grid Drawing**, *Proc. 1999 Software Visualisation Workshop*, Sydney, 3-4 December 1999.
14. K-B. Zhang, K. Zhang, and M.A. Orgun, **Using Graph Grammar to Implement Global Layout for a Visual Programming Language Generation System**, *Proc. VIP-2001 - Pan-Sydney Area Workshop on Visual Information Processing*, Sydney, Australia, 5 December 2001.

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1 Education

- Ph.D. in Electrical and Computer Engineering, Aug. 1987
 University of California, Santa Barbara
- M.S. in Mathematical Sciences, May 1982
 University of Texas at Dallas
- B.S. in Electrical Engineering, July 1973
 Jilin University, China

2 Experience

- Associate Head, July 2002 - Feb. 2004
 Department of Computer Science, University of Texas at Dallas
- Professor and Associate Head, May 2001 - May 2002
 Department of Electrical Engineering, University of Texas at Dallas
- Head, Telecommunications Engineering Division, May 2001 - May 2002
 Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas
- Tenured Professor, Sept. 1998 - present
 Department of Computer Science, University of Texas at Dallas
- Adjunct Associate Professor, Jan. 1995 - Aug. 1998
 Department of Electrical & Computer Engineering, Louisiana State University
- Tenured Associate Professor, Aug. 1993 - Aug. 1998
 Department of Computer Science, Louisiana State University
- Assistant Professor, Aug. 1987 - Aug. 1993
 Department of Computer Science, Louisiana State University

- Graduate Assistant, Aug. 1984 - Aug. 1987
University of California, Santa Barbara
- Graduate Assistant, Sept. 1980 - Aug. 1984
University of Texas at Dallas
- Research Engineer, Oct. 1978 - Sept. 1980
Physics Institute, Chinese Academy of Sciences, Beijing, China
- Research Engineer, July 1976 - Oct. 1978
High Energy Physics Institute, Chinese Academy of Sciences, Beijing, China
- Research Engineer, July 1976 - Oct. 1978
United R&D Team of DJS - 140 Computer System, Ministry of Electrical Industries, Beijing, China

3 Major Areas of Research Interests

Algorithms and Data Structures, Computer Architectures, Hardware/Software Co-design, Real-Time/Embedded Systems, Optimization, Parallel and Distributed Processing, Telecommunication and Networks, Circuits and Systems.

4 Courses Taught

1. Introduction to Computer Science (Undergraduate-level)
2. Computer Architectures (Undergraduate-level)
3. Programming Languages (Undergraduate-level)
4. Discrete Mathematics for Computing (Undergraduate-level)
5. Advanced Data Structures and Algorithms (Undergraduate-level)
6. Discrete Structures (Graduate-level)
7. Operating Systems (Graduate-level)
8. Advanced Computer Architectures (Graduate-level)
9. Advanced Operating Systems (Graduate-level)
10. Introduction to Computational Geometry (Graduate-level)
11. Algorithms for VLSI CAD (Graduate-level)
12. Algorithmic Aspects of Telecommunication Networks (Graduate-level)
13. Special Topics in Computer Science: Computational Geometry (Graduate-level)
14. Special Topics in Computer Science: Computational Aspects of VLSI (Graduate-level)

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15. Special Topics in Computer Science: High-Performance Computer Architectures (Graduate-level)
16. Special Topics in Computer Science: Distributed Systems (Graduate-level)
17. Special Topics in Computer Science: Interconnection and Switching Networks in High Performance of Computation and Communications (Graduate-level)

5 Ph.D. Dissertations Advised

1. K.H. Kwon, "Parallel Computation on Hypercube-Like Machines", 1991.
2. F. Lee, "Parallel Computational Geometry Algorithms", May, 1992.
3. Yieming Li "Design and Analysis of Optical Interconnection Networks for Parallel Computation", Aug. 1997.
4. Min He, "Efficient Parallel Computation on Multiprocessors with Optical Interconnection Networks", Oct. 2002.
5. Mei Yang, "High-Performance Schedulers for Network Routers/Switches", Aug. 2003.
6. Enyue Liu, "Parallel Algorithms for High Performance Switching in Communication Networks", Aug. 2004.
7. Bing Yang, "On Complexities of Finding Disjoint Paths and Related Problems", 2005.
8. Chuanjun Li, "Efficient 3D Pattern Retrieval in Large Motion Capture Databases", (Co-advisor), 2006. The student won the 2006 Best Ph.D. Dissertation Award of School of Engineering, UT-Dallas.

6 Master's Projects / Theses Advised

1. Enamul Haq "Optimal Algorithms for Balancing Threaded Binary Search Trees", Oct., 1988.
2. Fei Xu, "CSRDBS: Computer Science Department Resource Database System", Dec., 1988.
3. Yang-Tsong Lin, "An $O(n)$ Time Algorithm for Constructing Optimal Height B-Trees", Dec. 1989.
4. Subhajit Sen, "Heuristic Algorithms for Optimal Triangulation of a Point Set", Aug., 1991.
5. Vijaylakshmi Malani, "Enhancement of Sparse Matrix Processing", Jan., 1992.
6. Ming Sun, "Constructing Height-Optimal and Space-Optimal B-Trees in Optimal Time", May, 1992.
7. Chengmei Wang, "Data Communication in a Generalized Z-Cube Interconnection Network", Nov. 1992.

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8. Hesham M. Al-Ammal, "Parallel Graph Coloring on The MasPar", Dec. 1992.
9. R. Sivasubramana, "Generation and Defragmentation of Linked Lists", Feb. 1993.
10. Shijiao Li, "A Graphical User Interface and an Object-Oriented Approach to a Computer Aided Manufacturing Program", Aug. 1993.
11. Dipti Vijay Sonak, "Trace Driven, Single Run, Multiple Cache Simulation and Evaluation Algorithms", Nov. 1993.
12. Yingcai Peng, "A Prototype System for Computer Part Order Service", May 1995.
13. Ce Xu, "A Prototype System for Distributed On-Line Bank Transaction Processing", Oct. 1995.
14. Jin Cheng, "US Department of Agriculture Database Development Workbenches for Data Collection and Retrieval", April 1996.
15. Jiangchen Yu, "PEDS - A Three-tier Client/Server Distributed Information System", May 1996.
16. Weixing Shen, "A Distributed Version of Crack", May 1996.
17. Lijue Lin, "An On-Line Banking System", Oct. 1996.
18. Dongheng Zhang, "On-line Fingerprint Retrieval System for Crime Control", Nov. 1996.
19. Duo Chen, "A Prototype of LSU Multimedia On-line Registration System Using CGI and Oracle Database", Dec. 1996.
20. Senthil Kenchiah, "A Discrete Time Event Simulator for an ATM Network", July 1997.
21. Min He, "Efficient Parallel Algorithms on a Linear Array with a Reconfigurable Pipelined Bus System", Sept. 1997.
22. Chuanyong Wu, "Real Time Programming, Computer Interfaces and Virtual Instrumentation", Sept. 1997.
23. Uday V. Deshpande, "Group Design: A Computer Supported Cooperative Graphic Design GroupWare", March 1998.
24. Samer Sbèit, "Performance Evaluation of Disk Array System Using Fuzzy Logic and Neuro-Fuzzy Techniques", April 1999.
25. Jain Shakesh, "Computational Grids Using Light-Trail WDM Optical Networking Technology", Dec. 2006.

7 Publications

7.1 Papers in Journals and Edited Volumes

1. "A General Greedy Channel Routing Algorithm" (with T.T. Ho and S.S. Iyengar), *IEEE Transactions on Computer-Aided Design*, Vol. 10, No. 2, pp. 204-211, February 1991.
2. "Compressed Tree Machines", *IEEE Transactions on Computers*, Vol. 43, No. 2, pp. 222-226, 1994.
3. "Finding Obstacle-Avoiding Shortest Paths Using Implicit Connection Graphs" (with J.S. Lim and S.S. Iyengar), *IEEE Transactions on Computer-Aided Design*, Vol. 15, No. 1, pp. 103-110, 1996.
4. "Optimal Simulation of Linear Multiprocessor Architectures on Multiply-Twisted Cube Using Generalized Gray Codes" (with S. Latifi), *IEEE Transactions on Parallel and Distributed Systems*, Vol. 7, No. 6, pp. 612-619, 1996.
5. "Fast and Efficient Parallel Matrix Multiplication Algorithms on a Linear Array with a Reconfigurable Pipelined Bus System" (with K. Li and Y. Pan), *IEEE Transactions on Parallel and Distributed Systems*, 9(8), pp. 705-720, 1998.
6. "Lower Bounds for Dynamic Tree Embedding in Bipartite Networks" (with K. Li, Y. Pan, H. Shen, and G. H. Young), *IEEE Transactions on Parallel and Distributed Systems*, vol. 53, no. 2, pp. 119-143, 1998.
7. "How to Sort N Items Using a Sorting Network of Fixed I/O Size" (with S. Olariu and M.C. Phottti), *IEEE Transactions on Parallel and Distributed Systems*, vol. 10, no. 5, pp. 487-499, 1999.
8. "Constructing Optimal Search Trees in Optimal Time" (with M. Sun), *IEEE Transactions on Computers*, vol. 48, no. 7, pp. 738-743, 1999.
9. "An Optimal Hardware-Algorithm for Sorting Using a Fixed-Size Parallel Sorting Device" (with S. Olariu and M.C. Phottti), *IEEE Transactions on Computers*, Vol. 49, No. 12, pp. 1310 - 1324, 2000.
10. "An Improved Generalization of Mesh-Connected Computers with Multiple Buses" (with Y. Pan, K. Li and H. Shen), *IEEE Transactions on Parallel and Distributed Systems*, Vol. 12, No. 3, pp. 293-305, 2001.
11. "Efficient Parallel Algorithms for Distance Maps of 2D Binary Images using an Optical Bus" (with Y. Pan, Y. Li, J. Li and K. Li), *IEEE Transactions on Systems, Man and Cybernetics*, Vol. 32, No. 2, pp. 228-236, 2002.
12. "Classifying Matrices Separating Rows and Columns" (with A.A. Bertossi, S. Olariu and M.C. Phottti), *IEEE Transactions on Parallel and Distributed Systems*, Vol. 15, No. 7, pp. 654-665, 2004.

13. "The Bus-Connected Ringed Tree: A Versatile Interconnection Network" (with O.M. Dighe and R. Vaidyanathan), *Journal of Parallel and Distributed Computing*, Vol. 33, pp. 189-196, 1996.
14. "Performance Analysis for Dynamic Tree Embedding in k-partite Networks by Random Walk" (with H. Shen, K. Li, Y. Pan, and G.H. Young), *Journal of Parallel and Distributed Computing*, Vol. 50, pp. 144-156, 1998.
15. "Parallel Matrix Computations Using a Reconfigurable Pipelined Optical Bus" (with K. Li and Y. Pan), *Journal of Parallel and Distributed Computing*, Vol. 59, no. 1, pp. 13-30, 1999.
16. "Dual of a Complete Graph as an Interconnection Network" (with J. Wu), *Journal of Parallel and Distributed Computing*, Vol. 60, pp. 1028-1046, 2000.
17. "Generalized Coincident Pulse Technique and New Addressing Schemes for Time-Division Multiplexing Optical Buses" (with K. Li, Y. Pan, and M.C. Pinotti), *Journal of Parallel and Distributed Computing*, Vol. 61, pp. 1033-1051, 2001.
18. "Planar Convex Hull Algorithms on Linear Arrays" (with D. Carver and J. Liu), *Journal of Parallel Algorithms and Applications*, Vol. 10, pp. 59-70, 1996.
19. "Fast Nearest Neighbor Algorithms on a Linear Array with a Reconfigurable Pipelined Bus System" (with K. Li and Y. Pan), *Journal of Parallel Algorithms and Applications*, Vol. 13, pp. 1-25, 1998.
20. "Efficient Deterministic and Probabilistic Simulations of PRAMs on Linear Arrays with Reconfigurable Pipelined Bus Systems" (with K. Li and Y. Pan), *Journal of Supercomputing*, Vol. 15, no. 2, pp. 163-181, 2000.
21. "A General Scheme for Parallel In-Place Sorting" (with B. Calidas and Y. Zhang), *Journal of Supercomputing*, Vol. 14, No. 1, pp. 5-17, 1999.
22. "A Symmetric Processor Array with Synchronous Optical Buses and Switches" (with Y. Li, and J. Tao), *Parallel Processing Letters*, Vol. 8, No. 3, 1998.
23. "Determination of Hamiltonian Cycles in Cube-Based Networks Using Generalized Gray Codes" (with S. Latifi), *Journal of Electrical and Computer Engineering*, Vol. 21, No. 3, pp. 189-199, 1995.
24. "On Link Disjoint Hamiltonian Cycles of Torus Networks" (with S. Latifi), *Journal of Electrical and Computer Engineering*, Vol. 23, No.1, pp. 25-32, 1997.
25. "Pipelined TDM Optical Bus with Conditional Delays" (with Y. Li and Y. Pan), *Optical Engineering*, Vol. 36, No. 9, pp. 2417-2424, 1997.
26. "Pipelined Asynchronous Time-Division Multiplexing Optical Bus" (with Y. Li), *Optical Engineering*, Vol. 36, No. 12, pp. 3392-3400, 1997.
27. "Stretching and Three-layer Wiring Planar Layouts" (with T. F. Gonzalez), *Integration: the VLSI Journal*, Vol. 8, pp. 111-141, 1989.

28. "Grid Stretching Algorithms for Routing Multiterminal Nets Through a Rectangle" (with T.F. Gonzalez), *Integration: the VLSI Journal*, Vol. 13, No. 2, pp. 153-178, June 1992.
29. "Single Phase Three-Layer Channel Routing Algorithms" (with T.F. Gonzalez), *Integration: the VLSI Journal*, Vol. 17, pp. 141-151, 1994.
30. "Trade-off Considerations in Designing Efficient VLSI Feasible Interconnection Networks" (with B. Cong and S. Bettayeb), *VLSI Design*, Vol. 2, No. 4, pp. 365-374, 1995.
31. "On Ensuring Multilayer Wireability by Stretching Layouts" (with T.F. Gonzalez), *VLSI Design*, Vol. 7, No. 4, pp. 365-385, 1998.
32. "Finding Combined L1 and Link Metric Shortest Paths in the Presence of Obstacles" (with J.S. Lim and S.S. Iyengar), *VLSI Design*, Vol.9, No. 1, pp. 91-104, 1999.
33. "An Efficient Parallel Sorting Architecture" (with Y. Zhang), *VLSI Design*, Vol. 11, No. 2, pp. 137 - 147, 2000.
34. "Approximation Algorithms for Partitioning Rectilinear Polygons" (with T. F. Gonzalez), *Algorithmica*, Vol. 5, pp. 11-42, 1990.
35. "Improved Bounds for Rectangular and Guillotine Partitions" (with T. F. Gonzalez), *Journal of Symbolic Computation*, Vol. 7, pp. 591-610, July, 1989.
36. "An Efficient Divide-and-Conquer Algorithm for Partitioning into d-Boxes" (with T.F. Gonzalez and M. Razzazi), *International Journal of Computational Geometry & Applications*, Vol. 3, No. 4, pp. 417-428, 1993.
37. "On Optimal Guillotine Partitions Approximating Optimal d-Box Partitions" (with T.F. Gonzalez, M. Razzazi, M.-T. Shing), *Computational Geometry: Theory & Applications*, Vol. 4, pp. 1-11, 1994.
38. "Area Bound for the Three-Layer Writings of a Class of Planar Layouts" (with T. F. Gonzalez), *Congressus Numerantium*, Vol. 74, pp.181-192, January 1990.
39. "Constructing Optimal B-Trees in Optimal Time" (with Y. Lin), *Congressus Numerantium*, Vol. 76, pp. 243-254, December 1990.
40. "Minimizing Total Density of a Multiterminal-Net Channel in Optimal Time", *Congressus Numerantium*, Vol. 83, pp. 183-192, Dec. 1991.
41. "Finding the Shortest Path in Twisted Hypercubes" (with K.H. Kwon and J. Chen), *Congressus Numerantium*, Vol. 83, pp. 75-90, Dec. 1991.
42. "Average Distance Between Vertices of Multiply-Twisted Hypercubes" (with G. Young), *Congressus Numerantium*, Vol. 82, pp. 57-64, Dec. 1991.
43. "On Hamiltonian Paths between Two Vertices in Hypercube Graphs" (with S. Latifi), *Congressus Numerantium*, Vol. 89, pp. 111-117, 1992.

44. "Area Bound for the Three-Layer Writings of a Class of Planar Layouts" (with T. F. Gonzalez), *Congressus Numerantium*, Vol. 74, pp. 181-192, January 1990.
45. "Fast Sparse Matrix Multiplications" (with S.C. Park and J.P. Draayer), *Computer Physics Communications*, 70, pp. 557-568, 1992.
46. "Adjusting Channel Placement to Ensure Compact VLSI Layout" (with I.G. Tollis), *International Journal on Computer and Software Engineering*, Vol. 1, No. 1, pp. 47-62, 1993.
47. "A New Representation of Binary Search Trees", *Information Sciences*, No. 74 pp- 275-282, 1993.
48. "Hypercube-Like Networks with Reduced Interconnection Degrees" (with K.H. Kwon, S. Latifi and E. Park), *International Journal on Computer and Software Engineering*, Vol. 2, No. 1, pp. 111-134, 1994.
49. "Numerical Database System on a Weighted Search Tree" (with S.C. Park, J.P. Draayer and C. Bahri), *Computer Physics Communications*, Vol. 82, 247-264, 1994.
50. "Connectivity of X-Hypercubes and Its Applications" (with K.H. Kwon) *The Transactions of the Korea Information Processing Society*, Vol. 1, No. 1, pp. 92-99, 1994.
51. "A Computer-aided Aircraft Frame Assembly Planner" (with T. W. Liao, X.W. Wu and S.Q. Li), *Computers in Industry*, Vol. 27, pp. 259-271, 1995.
52. "Hamiltonian Paths and Cycles of Fibonacci Cubes with Applications" (with B. Cong and Y. Li), *Journal of Information and Computing*, pp. 451-464, 1995.
53. "Improved Recursive Bisection Line Drawing Algorithms" (with P. Graham and S.S. Iyengar), *Computers & Graphics, An International Journal*, Vol. 19, No. 6, pp. 847-860, 1995.
54. "Maximum Independent Sets of Circular-Arc Graphs: Simplified Optimal Algorithm and Proofs", *Networks*, Vol. 28, pp. 15-19, 1996.
55. "An Optical Interconnection Structure Based on the Dual of a Hypercube" (with Y. Li and J. Wu), *Informatica - An International Journal of Computing and Informatics*, Vol. 22, pp. 499-508, 1998.
56. "A Study of Average-Case Speedup and Scalability of Parallel Computations on Static Networks" (with K. Li, Y. Pan, and H. Shen), *Mathematical and Computer Modeling*, vol. 29, pp. 83-94, 1999.
57. "Near-Optimal Simulations of Trees by Fibonacci Cubes" (with B. Cong), *International Journal of Parallel and Distributed Systems and Networks*, Vol. 3, No. 1, pp. 34-38, 2000.
58. "On Equal Chromatic Partition of Interconnection Networks" (with K. Li, Y. Pan, H. Shen and G.H. Young), *Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 40, pp. 227 - 239, 2002.

59. "Constructing Schedulers for High-Speed, High-Capacity Switches/Routers" (with M. Yang and F. Masetti), *International Journal of Computers and Applications*, Vol. 25, No. 4, pp. 264-271, 2003.
60. "Simple Three-Layer Channel Routing Algorithms" (with T.F. Gonzalez), *VLSI Algorithms and Architectures, Lecture Notes in Computer Science*, Vol. 319, edited by J.H. Reif, pp. 237-246, Springer-Verlag, July 1988.
61. "Optimal Algorithms for Perfectly Balancing Trees" (with E. Haq), *Computing and Information*, edited by R. Janicki and W.W. Kozkodaj, pp. 125-129, North Hollands, 1989.
62. "Average Data Communication Performance of Twisted Hypercubes" (with K.H Kwon and S. Latifi), *Finite Fields, Coding Theory, and Advances in Communications and Computing, Lecture Notes in Pure and Applied Mathematics*, Vol. 141, edited by G. L. Mullen and P. J.-S. Shiue, pp. 120-125, Marcel Dekker, 1991.
63. "An Efficient Line Drawing Algorithms for Parallel Machines" (with P. Graham and S.S. Iyengar), *Parallel Image Analysis, Lecture Notes in Computer Science*, Vol. 654, edited by A. Nakamura et al., pp. 113-132, Springer-Verlag, 1992.
64. "Switch-Box Routing under the Two-Overlap Wiring Model" (with T.F. Gonzalez and T.S. Kurki-Gordara), *Algorithmic Aspects of VLSI Layout, Lecture Notes on Series of Computing*, edited by D.T. Lee and M. Sarrafzadeh, pp. 265-308, World Scientific Publishing Company, 1993.
65. "Fast and Efficient Parallel Matrix Computations on a Linear Array with a Reconfigurable Optical Pipelined Bus System" (with K. Li and Y. Pan), in *High Performance Computing Systems and Applications*, J. Schaefer, ed., pp. 363-380, Kluwer Academic Press, 1998.
66. "An Abstract Model for Optical Interconnection Networks", in *Parallel Computing Using Optical Interconnection Networks*, K. Li, Y. Pan and S.Q. Zheng, eds., pp. 139-162, Kluwer Academic Press, 1998.
67. "Constructing Optical Networks Using Combinatorial Designs", *Robust Communication Networks: Interconnection and Survivability, DIMACS Series in Discrete Mathematics and Theoretical Computer Science*, Vol. 53, pp. 127-141, AMS, 2000.
68. "Separators are as Simple as Cuts" (with H. Shen and K. Li), *ACSC, Lecture Notes in Computer Science*, Vol. 1742, pp. 347-358, Springer-Verlag, 1999.
69. "Computing Distance Maps Efficiently Using an Optical Bus" (with Y. Pan, Y. Li, J. Li and K. Li), *PDIVM'2000, Lecture Notes in Computer Science*, Vol. 1800, pp. 178-185, Springer-Verlag, 2000.
70. "A Parallel Iterative Improvement Stable Matching Algorithm" (with E. Lu), *HIPC, Lecture Notes in Computer Science*, Vol. 2913, edited by T.M. Pinkston and V.K. Prasanna, pp. 55-63, Springer-Verlag, 2003.

71. "Code Optimization of Polynomial Approximation Functions on Clustered Instruction-Level Parallelism Processors" (with M. Yang, J. Wang and Y. Jiang), to appear in *International Journal of Computers and Applications*.
72. "Algorithm-Hardware Codesign of Fast Parallel Round-Robin Arbiters" (with M. Yang), *IEEE Transactions on Parallel and Distributed Systems*, Vol. 18, No. 1, pp. 84-95, 2007.
73. "Parallel Routing Algorithms for Nonblocking Electronic and Photonic Switching Networks" (with E. Lu), *IEEE Transactions on Parallel and Distributed Systems*, Vol. 16, No. 8, pp. 702-713, 2005.
74. "Fast Reconfiguration Algorithms for Time, Space, and Wavelength Dilated Optical Buses Networks," (with E. Lu), *International Journal of Parallel, Emergent and Distributed Systems*, Vol. 22, No. 1, pp. 39-58, 2007.
75. "Finding Two Disjoint Paths in a Network with Normalized α^+ -Min-Sum Objective Functions" (with B. Yang and E. Lu), *Algorithms and Computation, Lecture Notes in Computer Science*, 3827, edited by X. Deng and D. Du, pp. 954-963, Springer-Verlag, 2005.
76. "Efficient Scheduling for SDMG CIOQ Switches," (with M. Yang) *IEICE Transactions on Communications*, Vol. E89-B, No. 9, pp. 2457-2468, 2006.
77. "Optimal Method for Coordinated En-Route Web Caching for Tree Networks" (with K. Li, H. Shen, and F.Y.L. Chin), *ACM Transactions on Internet Technology*, Vol. 5, No. 3, pp. 480-507, 2005.
78. "Next Generation Optical Storage Area Networks: The Light-trail Approach" (with A. Gumaste), *IEEE Communications Magazine*, Vol. 43, No. 3, pp. 72-79, 2005.
79. "Scalable and Practical Nonblocking Switching Networks" (with A. Gumaste), *Journal of Computer Science and Technology*, Vol. 21, No. 4, pp. 466-475, 2006.
80. "Dual-Homing Based Scalable Partial Multicast Protection" (with J. Wang, M. Yang and B. Yang), *IEEE Transactions on Computers*, Vol. 55, No. 9, pp. 1130-1141, 2006.
81. "Minimum Edge Length Rectangular Partitions" (with T. F. Gonzalez), to appear in *Approximation Algorithms and Metaheuristics Handbook*.
82. "Light-frames - Pragmatic Framework for Optical Packet Transport: Extending Ethernet LANs to Optical Networks" (with A. Gumaste), *IEEE/OSA Journal of Lightwave Technology*, Vol. 24, No. 10, pp. 3598-3615, 2006.
83. "Segmentation and Recognition of Multi-Attribute Motion Streams by Similarity Measure" (with C. Li and B. Prabhakaran), *ACM Transactions on Multimedia Computing, Communications and Applications*, Vol. 3, No. 3, 2007.
84. "Finding Min-Sum Disjoint Shortest Paths from a Single Source to All Pairs of Destinations" (with B. Yang), *Theory and Applications of Models of Computation, Lecture Notes in Computer Science 3959*, pp.206-216, Springer-Verlag, 2006.

7.2 Refereed Conference Papers

85. "Bounds for Partitioning Rectilinear Polygons" (with T. F. Gonzalez), *Proceedings of the 1st ACM Conference on Computational Geometry*, pp. 281-287, Baltimore, Maryland, June 1985.
86. "Improved Bounds for Rectangular and Guillotine Partitions" (with T. F. Gonzalez), *Proceedings of the 24th Allerton Conference on Communication, Control and Computing*, pp. 334-343, Monticello, Illinois, October 1986.
87. "Layer Assignment for Planar Layouts" (with T. F. Gonzalez), *Proceedings of IEEE International Conference on Computer Design: VLSI in Computers and Processors (ICCD '87)*, pp. 278-281, October 1987.
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7.4 Books Edited

1. *Parallel Computing Using Optical Interconnection Networks*, 279 pages. Editors: K. Li, Y. Pan and S.Q. Zheng, Kluwer Academic Press, Sept. 1998. ISBN 0-7923-8296-X.
2. *Proceedings of 10th International Conference on Parallel and Distributed Computing Systems*, 629 pages. Editors: A. El-Amawy and S. Q. Zheng, ISCA Press, Oct. 1997. ISBN 1-880843-21-8.
3. *Proceedings of 11th International Conference on Parallel and Distributed Computing and Systems*, 2 volumes, 1079 pages. Editor: S. Q. Zheng. ACTC Press, Nov. 1999. ISBN 0-88986-275-3.
4. *Proceedings of 17th IASTED International Conference on Parallel and Distributed Computing and Systems*, 789 pages, Editor: S. Q. Zheng. ACTC Press, Nov. 2005. ISBN 0-88986-525-6.
5. *Proceedings of 18th IASTED International Conference on Parallel and Distributed Computing and Systems*, 700 pages, Editor: S. Q. Zheng. ACTC Press, Nov. 2006. ISBN 0-88986-638-4.

8 Patents

1. S.Q. Zheng, Y. Xiong, and Marc Vandenhout, "Hardware Implementation of Channel Scheduling Algorithms for Optical Routers with FDL Buffers", US Ser. No. 09/685,584, 10/12/2000. Also filed in Europe.
2. S.Q. Zheng, Y. Xiong, and Steve Y. Sakalian, "Unified Associate Memory of Data Channel Schedulers in an Optical Router", US Ser. No. 09/988,293, 11/29/2001. Also filed in Europe, Japan and China.
3. Y. Xiong and S.Q. Zheng, "Channel Scheduling in Optical Routers", US Ser. No. 07/997,851, 11/29/2001. Also filed in Europe, Japan and China.
4. S.Q. Zheng and Y. Xiong, "Optical Burst Scheduling Using Partitioned Channel Groups", US Ser. No. 09/997,849, 11/20/2001.
5. S.Q. Zheng and Y. Xiong, "Ingress Edge Router Architecture and Related Channel Scheduling Algorithms for OBS Networks", US Ser. No. 10/320,220, 12/16/2002.
6. S.Q. Zheng, J. Blanton, P. Golla, D. Verchere, and D. Zrinyi, "A Parallel Round-Robin Arbitrator for Switch Control".
7. Y. Yang, S.Q. Zheng, and D. Verchere, "Group Switching for DWDM Optical Networks".
8. S.Q. Zheng, M. Yang, and F. Masetti-Placci, "Programmable Parallel k-Selectors as Schedulers of Multiserver Systems".

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9 Grants

- PI, "Parallel VLSI Design Algorithms", Council on Research, LSU, \$4,000, 1992.
- Co-PI, "New Perspectives in Neural Computing" (with M. Naraghi-Pour, M. Hegde, J. Aravena, and A. Slavantzos), \$78,500. NSF/IaSER, 1991.
- Co-PI, "Integrating High-Performance Computing into Research in Physics and Astronomy, Chemistry, and Computer Science" (with R. Kalia, P. Vashishta, J. Toghiani, and R. Hall), \$357,500. NSF, 1995-2000.
- PI, "Constructing Optical Interconnections for Massively Parallel Computers", \$50,000. NSF, 1996.
- PI, "Theory and Design of Optical Interconnect Structures for Massively Parallel Computers", \$102,000. LEQSF, 1996-1999.
- PI, "Distributed Multimedia Laboratory for Advanced Research and Education" (with S.S. Iyengar and X.-H. Sun), \$80,000. LEQSF, 1997.
- Co-PI, "Strategies for IP Quality of Service" (with B. Chen, Y.-L. Yen, G. R. Dattatreya, and R. Prakash), \$50,000. Alcatel, 1998.
- Co-PI, "Hardware-Software Co-Design for IP Component Implementation" (with Y.-L. Yen, B. Chen, D.T. Huynh, and R. Prakash), \$50,000. Alcatel, 1998.
- PI, "Algorithmic Aspects of Hardware-Software Co-Design for Burst Switching" (with B. Chen and Y.-L. Yen), \$25,000. Alcatel, 1998.
- PI, "Implementation Issues of Hardware-Software Co-Design for Burst Switching" (with B. Chen and Y.-L. Yen), \$25,000. Alcatel, 1998.
- Co-PI, "Developing Queueing Architecture to Support QoS Guarantee in IP Networks", (with Biao Chen), \$30,550. TxTEC Consortium, Sept. 1, 1999 - Aug. 31, 2000.
- Co-PI, "Effective Resource Management for Differentiated Services", (with Biao Chen and W. Zhao), \$96,700. Texas Advanced Research Program, Jan. 1, 2000 - Dec. 31 2001.
- PI, "Scheduling Algorithms for Scalable High-Speed, High-Capacity Routers with QoS Support for Packet/Burst Switching Networks", \$100,453. Alcatel, July 2001 - July 2002.
- Co-PI, "Implementation and Evaluation of DSP Processors" (with E. Sia and Y. Wang), \$49,514. Texas Instruments, 2000.
- PI, "Optimization of Hypergraphs and Combinatorial Designs with Applications", \$150,000. NSF, 2005.
- PI, "Toward Optimal Wide-Sense Nonblocking Multicast Switching Networks", \$100,000. NSF, 2006.

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10 Conference Committees

1. Program Co-Chair, *International Conference on Complex Open Distributed Systems (CODS'2007)*, 2007.
2. General Chairman, *The 8th International Conference on Parallel and Distributed Computing Applications and Technologies*, 2007.
3. Chairman, *The 19th IASTED International Conference on Parallel and Distributed Computing and Systems*, 2007.
4. General Chairman, *The 8th International Conference on Parallel and Distributed Computing Applications and Technologies*, Adelaide, Australia, 2007.
5. Chairman, *The 18th IASTED International Conference on Parallel and Distributed Computing and Systems*, 2006.
6. Chairman, *The 17th IASTED International Conference on Parallel and Distributed Computing and Systems*, 2005.
7. Chairman, *The 14th International Conference on Parallel and Distributed Computing Systems*, 2001.
8. Chairman, Program Committee, *The 11th IASTED International Conference on Parallel and Distributed Computing and Systems*, 1999.
9. Vice Chairman, *The Second International Conference on Parallel and Distributed Computing and Networks*, 1998.
10. Co-Chairman, Program Committee, *The 10th ISCA International Conference on Parallel and Distributed Computing Systems*, 1997.
11. Chairman, Program Committee, *The 8th International Conference on Computing and Information*, 1996.
12. Stream (Track) Chairman, Program Committee, *International Conference on Computing and Information*, 1995.
13. Stream (Track) Chairman, Program Committee, *1994 International Conference on Computing and Information*, 1994.
14. Member, Steering Committee, *The 10th IASTED International Conference on Parallel and Distributed Computing and Systems*, 1998.
15. Member, Steering Committee, *The 9th IASTED International Conference on Parallel and Distributed Computing and Systems*, 1997.
16. Member, Advisory Committee, *The 14th International Conference on Parallel and Distributed Computing and Systems*, 2002.

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17. Member, Advisory Committee, *The 13th International Conference on Parallel and Distributed Computing and Systems*, 2001.
18. Member, Advisory Committee, *The 12th International Conference on Parallel and Distributed Computing and Systems*, 2000.
19. Member, Program Committee, *The 12th International IEEE Pacific Rim Symposium on Dependable Computing*, 2007.
20. Member, Program Committee, *ChinaCom 2007*.
21. Member, Program Committee, *The 2nd International Conference on Access Networks (AccessNets 2007)*.
22. Member, Program Committee, *The IFIP International Conference on Network and Parallel Computing (NPC 2007)*.
23. Member, Program Committee, *The 6th International Conference on Web-based Learning (ICWL 2007)*.
24. Member, Program Committee, *The International Symposium on Parallel Architectures, Algorithms, and Networks (I-SPAN)*, 2007.
25. Member, Program Committee, *The 7th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2007)*.
26. Member, Program Committee, *International Symposium on Bioinformatics Research and Applications (ISBRA 2007)*.
27. Member, Program Committee, *The 15th International Conference on Computer Communication and Networks (ICCCN)*, 2006.
28. Member, Program Committee, *The 6th International Conference on Information Technology (CIT 2006)*.
29. Member, Program Committee, *Symposium on Advanced Technologies & Protocols for Optical Networks, Globecom 2006*.
30. Member, Program Committee, *The 6th International Conference on Communications in Computing (CIC'2006)*.
31. Member, Program Committee, *The 5th International Conference on Web-based Learning (ICWL 2006)*.
32. Member, Program Committee, *The 19th ISCA International Conference on Parallel and Distributed Computing Systems*, 2006.
33. Member, Program Committee, *International Conference on Computational and System Biology (CASH 2006)*.
34. Member, Program Committee, *The 4th International Conference on Web-based Learning (ICWL 2005)*.

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35. Member, Program Committee, *The 6th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-2005)*, 2005.
36. Member, Program Committee, *The 14th International Conference on Computer Communications and Networks*, 2005.
37. Member, Program Committee, *The 18th ISCA International Conference on Parallel and Distributed Computing Systems*, 2005.
38. Member, Program Committee, *The 4th International Conference on Web-based Learning (ICWL 2005)*.
39. Member, Program Committee, *High Performance Computing & Simulation (IPCCS) Conference*, 2005.
40. Member, Program Committee, *International Conference on Communications in Computing*, 2005.
41. Member, Program Committee, *The 13th International Conference on Computer Communications and Networks*, 2004.
42. Member, Program Committee, *The 17th ISCA International Conference on Parallel and Distributed Computing Systems*, 2004.
43. Member, Program Committee, *The Third International Conference on Web-based Learning (ICWL 2004)*, 2004.
44. Member, Technical Committee, *International Workshop on Network Design and Architecture (to be held in conjunction with The 2004 International Conference on Parallel Processing (ICPP-04))*.
45. Member, Program Committee, *The 6th Workshop on Advances in Parallel and Distributed Computational Models (held in conjunction with 2004 International Parallel and Distributed Processing Symposium (IPDPS))*.
46. Member, Program Committee, *The 16th International Conference on Parallel and Distributed Computing Systems*, 2003.
47. Member, Program Committee, *The 15th International Conference on Parallel and Distributed Computing and Systems*, 2003.
48. Member, Program Committee, *International Workshop on Optical Networks Control and Management (ONCM '03, to be held in conjunction with 32nd International Conference on Parallel Processing)*, 2003.
49. Member, Program Committee, *The 2nd International Conference on Web-based Learning (ICWL 2003)*, 2003.
50. Member, Program Committee, *The 5th Workshop on Advances in Parallel and Distributed Computational Models (held in conjunction with 2003 International Parallel and Distributed Processing Symposium (IPDPS))*.

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51. Member, Organizing Committee, *IEEE Emerging Technologies in Telecommunications Conference*, 2002.
52. Member, Program Committee, *The First International Symposium on Cyber Worlds: Theory and Practice (CW2002)*.
53. Member, Technical Committee, *High Speed Networks Symposium, IEEE GLOBECOM-2002*.
54. Member, Program Committee, *The 3rd International Conference on Communications in Computing (CIC'2002)*.
55. Member, Program Committee, *The 3rd International Conference on Parallel and Distributed Computing, Applications, and Technologies (PDCAT 2002)*.
56. Member, Program Committee, *The 4th Workshop on Advances in Parallel and Distributed Computational Models (held in conjunction with 2002 International Parallel and Distributed Processing Symposium (IPDPS))*.
57. Member, Program Committee, *The 5th International Conference on Algorithms & Architectures for Parallel Processing (ICA3PP 2002)*.
58. Member, Technical Committee, *Optical Networks Symposium, IEEE GLOBECOM-2001*, 2001.
59. Member, Program Committee, *Asia Pacific Web Conference (APWeb01)*, 2001.
60. Member, Program Committee, *Second International Conference on Communications in Computing (CIC'2001)*.
61. Member, Program Committee, *Workshop on Optical Networks (held in conjunction with ICPP 2001)*.
62. Member, Program Committee, *The 3rd Workshop on Advances in Parallel and Distributed Computational Models (held in conjunction with 2001 International Parallel and Distributed Processing Symposium (IPDPS))*.
63. Member, Program Committee, *The 21st IEEE International Conference on Distributed Computing Systems (ICDCS 2001)*, 2001.
64. Member, Program Committee, *The 2nd Workshop on Reconfigurable Computing*, 2000.
65. Member, Program Committee, *The First International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT'2000)*, 2000.
66. Member, Program Committee, *The 7th IEEE International Conference on Parallel Interconnects*, 2000.
67. Member, Program Committee, *International Conference on Communications in Computing*, 2000.

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68. Member, Program Committee, *Workshop on Advances in Parallel and Distributed Computational Models*, 2000.
69. Member, Program Committee, *The 18th ISCA International Conference on Parallel and Distributed Computing Systems*, 2000.
70. Member, Program Committee, *International Symposium on Information Technology: Coding and Computing (ITCC'2000)*, 2000.
71. Member, Program Committee, *The 5th International Conference on Computer Science and Informatics*, 2000.
72. Member, Program Committee, *International Conference of Young Computer Scientists*, 1999.
73. Member, Program Committee, *The 3rd Workshop on Optics and Computer Science, IPPS'99*, 1999.
74. Member, Program Committee, *Workshop on Advances in Parallel Computing Models, IS-PAN'99*, 1999.
75. Member, Program Committee, *The Fourth IEEE International Symposium on Parallel Architectures, Algorithms, and Networks*, 1999.
76. Member, Program Committee, *The 12th ISCA International Conference on Parallel and Distributed Computing Systems*, 1999.
77. Member, Program Committee, *Asia Pacific Web Conference*, 1999.
78. Member, Program Committee, *Asia Pacific Web Conference*, 1998.
79. Member, Program Committee, *First Southern Symposium on Computation*, 1998.
80. Member, Program Committee, *SPIE Conference on Reliable Optical Transmission and Network Engineering, SPIE's International Symposium on Optical Science, Engineering, and Instrumentation*, 1998.
81. Member, Program Committee, *The Third IEEE International Symposium on Parallel Architectures, Algorithms, and Networks*, 1997.
82. Member, Program Committee, *The Second International Workshop on CSCW Design*, 1997.
83. Member, Program Committee, *The 9th ISCA International Conference on Parallel and Distributed Computing Systems*, 1996.
84. Member, Program Committee, *The 8th IASTED International Conference on Parallel and Distributed Computing and Systems*, 1996.
85. Member, Technical Committee, *The 28th IEEE Southeastern Symposium on System Theory*, 1996.
86. Member, Program Committee, *The Second International Conference on Computer Communication and Networks*, 1994.

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87. Member, Program Committee, *The 7th International Conference on Parallel and Distributed Computing Systems*, 1994.
88. Member, Program Committee, *International Conference on Computer Applications in Design, Simulation and Analysis*, 1993.
89. Member, Program Committee, *The 5th International Conference on Computing and Information*, 1993.
90. Member, Program Committee, *The 3rd International Conference on Computer Communication and Networks*, 1993.

11 Referee/Reviewer

11.1 Grant Reviews

- Panelist, NSF Proposal Review Panel, Washington D.C., 2005.
- Panelist, NSF Proposal Review Panel, Washington D.C., 2003.
- Panelist, NASA Proposal Review Panel, NASA Applied Information Systems Research Program, Washington D.C., 1995.
- Regular Reviewer, reviewed numerous NSF research proposals.
- Reviewer, Natural Sciences and Engineering Research Council of Canada, 2002.
- External Reviewer, Research Grants Council of Hong Kong Government since 1993.
- External Reviewer, EPSCoR (An Experimental Program to Stimulate Competitive Research) of South Dakota, 1996.
- External Reviewer, EPSCoR (An Experimental Program to Stimulate Competitive Research) of North Dakota, 1995.
- External Reviewer, Jeffress Memorial Trust, Commonwealth of Virginia, 1994.
- External Reviewer, John Simon Guggenheim Memorial Foundation, New York, 2003.

11.2 External Theses Reviews

- External PhD Dissertation Reviewer, Indian Institute of Technology, 1992.
- External Reviewer of PhD Dissertation and MS Theses, Chinese University of Hong Kong since 1993.

11.3 Reviewer for Educational Programs

Invited to serve as the (only) External Reviewer for the Computer Science programs of South Dakota State University, Nov. 1997.

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11.4 Referee for Journals and Conferences

Many journals and conferences.

12 University Committees

12.1 University Level

- Member, Academic Senate, UT-Dallas, 2003 - 2004.
- Member, Dean of Engineering School Search Committee, UT-Dallas, 2002.
- Member, Committee on Qualifications, UT-Dallas, 1999 - 2000.
- Chairman, Committee on Qualifications, UT-Dallas, 2000 - 2001.
- Member, Committee on Committees, UT-Dallas, 2001 - 2003
- Member, Advisory Committee on Research, UT-Dallas, Aug. 2003 - 2006.
- Member, Faculty Mentorship Committee, UT-Dallas, Aug. 2003 - 2006.

12.2 School Level

- Member, Committee on Academic Affairs, School of Engineering, UT-Dallas, Aug. 2002 - Aug. 2003, Aug. 2004 - Jan. 2006.
- Member, Post-tenure Review Committee, School of Engineering, UT-Dallas, Aug. 2002 - Aug. 2004.
- Member, Research Advisory Committee, School of Engineering, UT-Dallas, Aug. 2004 - present.
- Member, Governing Board of Telecommunications Engineering (BS, MS and Ph.D.) programs, School of Engineering, UT-Dallas, July 2002 - Aug. 2004.

12.3 Department Level

Served as a member or the chair of many departmental committees at LSU and UTD. Examples: Department Chairman Search, Faculty Search (Chair), Faculty Performance Evaluation, Graduate Admission (Chair), Graduate Assistantship, Graduate Curriculum, Undergraduate Curriculum (Chair), Colloquium (Chair), PhD Qualifying Exam (Coordinator), MS Comprehensive Exam (Coordinator), various special ad hoc committees, etc.