

Michael Tiefelsdorf, Ph.D.

***Geospatial Information Sciences Program in the
School of Economic, Political and Policy Sciences***

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Professional Profile

Michael Tiefelsdorf is a geographer by training with a strong methodological orientation in geo-spatial data handling and statistics. His Ph.D. is from Wilfrid Laurier University, 1998, and his M.S. from Free University of Berlin, 1988.

His theoretical research and academic publications focus on the development of local and global statistical and analytical spatial methodologies, spatial interaction modeling, optimal spatial sampling and survey plans, small area estimation techniques and their integration into geo-statistical software environments such as the open source environment . He applies these new methodologies to foster our understanding of demographic, socio-economic and epidemiological spatial processes. The National Cancer Institute and the National Science Foundation fund his research.

His recent graduate students have applied novel geo-statistical approaches to analyze crime, election, public health and disease patterns, the spatial mismatch of local demand and supply patterns, urban real estate markets, interregional migration systems and spatial sampling strategies under constraints.

Visit Dr. Tiefelsdorf's personal website at <http://www.tiefelsdorf.spatialfiltering.com>.

Educational History

- 1981 until 1983*** Undergraduate studies in GEOGRAPHY at the Free University of Berlin with Minors in ECONOMICS and CARTOGRAPHY
- 1983 until 1988*** Graduate studies in GEOGRAPHY at the Free University of Berlin with Minors in STATISTICS and ECONOMETRICS
- 1986 until 1987*** EXCHANGE STUDENT at Wilfrid Laurier University in Waterloo, Canada
- 1992 until 1997*** PH.D. STUDIES in the Waterloo-Laurier Graduate Geography Program at Wilfrid Laurier University in Waterloo, Ontario, Canada
Graduation with distinction June 16, 1998

Dissertation title: Modelling Spatial Processes. The Identification and Analysis of Spatial Relationships in Regression Residuals by Means of Moran's I

Academic titles: Master of Sciences in Geography
Ph.D. in Geography

Professional Experiences

- 1980 until 1981 ASSISTANT EDITOR of the German family magazine *Hörzu*
- 1984 until 1988 RESEARCH ASSISTANT for statistical analysis and software development in the Department of Meteorology at the Free University of Berlin, Germany
- 1988 until 1990 STATISTICIAN at the Federal Health Office of Germany in Berlin to support the analysis of National Health Survey. Primary focus on tobacco and alcohol abuse as well as Oecotrophology
- 1989 until 1996 ACADEMIC ASSISTANT and DEPARTMENTAL COMPUTER ADMINISTRATOR with teaching, research and administrative duties in the Department of Geography, Free University of Berlin
- 1998 until 2000 ASSISTANT PROFESSOR for *Geography* at The University of Manitoba
- 2000 until 2003 ADJUNCT PROFESSOR in the Department of Geography at The University of Manitoba
- 2000 until 2005 ASSISTANT PROFESSOR for *Geography* at The Ohio State University
- since 2005 ASSOCIATE PROFESSOR for *Geospatial Information Sciences* in the School of Economic, Political and Policy Sciences at The University of Texas in Dallas

Professional Memberships

- since 1996 *The American Association of Geographers*
with Specialty Groups:
Spatial Analysis and Modeling
Medical Geography
Geographic Information Systems
- since 1998 *Regional Science Association International*
- since 1999 *American Statistical Association*
- since 2002 *The Canadian Association of Geographers*

Honors and other Recognitions

- 1997 Recipient of the **Student Paper Award** from the Spatial Analysis and Modeling Specialty Group at the annual meeting of the *Association of American Geographers* in Fort Worth

1998 Recipient of the **Graduate Gold Medal** for the Doctor of Philosophy
by Wilfrid Laurier University

Achievements

Peer reviewed journal articles:

- 1989 Arab-Kohlmeier, L., M. Tiefelsdorf, B. Junge, und H. Hoffmeister, 1989. Werden die europäischen Gebote gegen den Krebs beachtet? Häufigkeiten und Trends einiger gesundheitsrelevanter Verhaltensweisen in der Bundesrepublik Deutschland. *Bundesgesundheitsblatt*.
- 1989 Junge, B., M. Tiefelsdorf, und L. Arab-Kohlmeier, 1989. Strukturelle Veränderungen des bundesdeutschen Tabakkonsums in drei Jahrzehnten. *Bundesgesundheitsblatt*.
- 1990 Junge, B., M. Tiefelsdorf, und U. von Maltzan, 1990. Alkoholkonsum in der Bundesrepublik Deutschland. *Bundesgesundheitsblatt*.
- 1992 Junge, B., L. Arab-Kohlmeier, M. Tiefelsdorf, und H. Hoffmeister, 1992. Krebsfrüherkennung wird zu wenig genutzt. Repräsentative Ergebnisse aus dem Nationalen Gesundheits-Survey. *Zeitschrift für Allgemeinmedizin*, 811-816.
- 1993 Braun, G. O., und M. Tiefelsdorf, 1993. Screening the Spatial Structure of Internal Migration Flows and their Inherent Dynamics Demonstrated at Berlin (West). *Geographica Polonica*, **61**: 219-233.
- 1995 Tiefelsdorf, Michael and Barry Boots, 1995. The Specification of Constrained Interaction Models Using SPSS's Loglinear Procedure, *Geographical Systems*, **2**, 21-38.
- 1995 Tiefelsdorf, Michael and Barry Boots, 1995. The Exact Distribution of Moran's *I*, *Environment and Planning A*, **27**, 985-999.
- 1997 Tiefelsdorf, Michael, and Barry Boots, 1997. A Note on the Extremities of Local Moran's *I*'s and Their Impact on Global Moran's *I*. *Geographical Analysis*, **29**, 248-257.
- 1997 Tiefelsdorf, Michael, and Gerhard Braun, 1997. The Migratory System of Berlin after the Unification in the Context of Global Restructuring. *Geographica Polonica*, **69**, 23-44.
- 1998 Tiefelsdorf, Michael, 1998. Some Practical Applications of Moran's *I*'s Exact Conditional Distribution. *Papers in Regional Science*, **77**, 101-129
- 1999 Tiefelsdorf, Michael, Daniel A. Griffith, and Barry N. Boots, 1999. A Variance Stabilizing Coding Scheme for Spatial Link Matrices. *Environment and Planning A*, **31**, 165-180.
- 2000 Boots, Barry N., and Michael Tiefelsdorf, 2000. Global and Local Spatial Autocorrelation in Bounded Regular Tessellations. *Journal of Geographical Systems*, **2**, 319-348.
- 2002 Tiefelsdorf, Michael, 2002. The Saddlepoint Approximation of Moran's *I*'s and Local Moran's *I*'s Reference Distributions and Their Numerical Evaluation. *Geographical Analysis*, **34**, 187-206.
- 2003 Tiefelsdorf, Michael, 2003. Misspecification in Interaction Model Distance Decay Relations: A Spatial Structure Effect. *Journal of Geographical Systems*, **5**, 25-50
- 2005 Wheeler D., and M. Tiefelsdorf, 2005. Multicollinearity and Correlation among Local Regression Coefficients in Geographically Weighted Regression. *Journal of Geographical Systems*. **7**:161-187

- 2007 Tiefelsdorf M., and D. A. Griffith, 2007. Semi-parametric Filtering of Spatial Autocorrelation: The Eigenvector Approach. *Environment and Planning A*, **38**: 1193-1221
- 2007 Tiefelsdorf, M. Controlling for Migration Effects in Ecological Disease Mapping of Prostate Cancer. *Stochastic Environmental Research and Risk Assessment*, **21**:615-624
- 2008 Berry B., D. Griffith, and M. Tiefelsdorf From spatial analysis to geospatial science. *Geographical Analysis*, **40**:229-238
- 2011 Patuelli R., D. A. Griffith, M. Tiefelsdorf and P. Nijkamp. Spatial Filtering and Eigenvector Stability: Space-Time Models for German Unemployment Data, *International Regional Science Review*, **34**: 253-280

Editor reviewed journal articles

- 1989 Junge, B., M. Tiefelsdorf, und L. Arab-Kohlmeier, 1989. Tabakkonsum in der Bundesrepublik Deutschland. Strukturveränderungen in drei Jahrzehnten. *Prävention*.
- 2003 Mei-Po Kwan, Alan T. Murray, Morton E. O'Kelly, and Michael Tiefelsdorf, 2003. Research on Accessibility in Space and Time: Future Prospects. *Journal of Geographical Systems*, **5**, 129-138
- 2004 LeSage James, Kelley Pace, and Michael Tiefelsdorf, 2004. Methodological Developments in Spatial Econometrics and Statistics, *Geographical Analysis*, **36**, 87-89. Editorial of Geographical Analysis' special issue on Spatial Econometrics and Spatial Statistics.

Papers in proceedings

- 1998 Braun, Gerhard, and Michael Tiefelsdorf, 1998. External Forces and the Changing Structure of Urban Migration Pattern: Evidence form Berlin since Unification. In: *The Political Geography of Current East-West Relations*. Burdack, J. Grimm, F.-D., and Paul, L. (eds.). Leipzig: Institut für Länderkunde Leipzig, 18-32.

Books:

- 1988 Tiefelsdorf, Michael, 1988. *The Specification of the Nested Logit Model in Migration Analysis. A Reanalysis of an Interprovincial Canadian Migration Data-Set*. METAR Series, Vol. 13, Berlin: Free University of Berlin, Department of Geography.
- 2000 Tiefelsdorf, Michael, 2000. *Modelling Spatial Processes - The Identification and Analysis of Spatial Relationships in Regression Residuals by Means of Moran's I*. Springer Verlag, Berlin. ISBN 3-540-66208-1

Chapters in edited books

- 1996 Braun, Gerhard, and Michael Tiefelsdorf, 1996. *Innerstädtische Migrationen in Berlin seit 1991. Über den Stand der Integration beider Wanderungssysteme*. In: Festschrift für Burkhard Hofmeister: Stadt und Wirtschaftsraum. Steinecke, A., editor, 165-180, Berliner Geographische Studien, Berlin.

Bulletins and technical reports

- 1991 Tiefelsdorf, M., C. Breßler, and C. Feix, 1991. *BGIS - Ein Berliner Geographisches Informationssystem*. METAR Series, Vol. 17, Berlin: Free University of Berlin, Department of Geography.

List of Academic Presentations

- 1989 Presentation at *The European Colloquium of Theoretical and Quantitative Geography* in Paris, France. "The Specification of the Nested Logit Model in Migration Research"
- 1990 Joint-presentation with Gerhard Braun at *The All-European Canadian Studies Conference* in The Haag, Netherlands. "Three Decades of Interprovincial Migration in Canada. Do Current Data Allow Projections?"
- 1994 Joint-presentation with Barry Boots at the AAG in San Francisco. "The Exact Distribution of Moran's I "
- 1995 Joint-presentation with Barry Boots at the AAG in Chicago. "Methods of Identifying the Most Likely Spatial Process"
- 1995 Joint-presentation with Barry Boots and Dieter Schön at the CAG in Montreal. "Spatial Interrelations Between Incidences of Cancers in the Former German Democratic Republic"
- 1995 Invited presentation at the Department of Geography, Syracuse University. "The Distribution of Moran's I under Alternative Hypotheses"
- 1995 Joint-presentation with Daniel Griffith at the RSAI in Cincinnati. "Some Relations between Eigenfunctions of the Geographic Weights Matrix and Latent Spatial Autocorrelation in Geo-referenced Data"
- 1995 Invited presentation at the Statistical Colloquium in Berlin. "The Exact Distribution of Moran's I under Alternative Hypotheses with Examples on the Spatial Distribution of Cancer Incidence Rates"
- 1996 Joint-presentation with Barry Boots at the AAG in Charlotte. "Local Moran's I_i : Exact Distribution under Global Spatial Autocorrelation"
- 1996 Joint-presentation with Barry Boots at the ESDA with LISA conference in Leicester, Britain. "Extremities of Local Moran's I_i 's and their Impact on Global Moran's I "
- 1996 Joint-presentation with Gerhard Braun at the IGU meeting in The Haag, Netherlands. "Developments of the Urban Migratory System of Berlin since the Unification (1990)"
- 1996 Joint-presentation with Daniel Griffith and Barry Boots at the RSAI in Washington. "A Variance Stabilizing Coding Scheme for Spatial Link Matrices"
- 1997 Invited presentation at the International Biometric Society - German Subdivision in Munich. "The Identification of Local Heterogeneity in Global Spatial Processes. An Application of Local Moran's I_i on Cancer Incidence Rates"
- 1997 Joint-presentation with Barry Boots at the AAG in Fort Worth. "Pattern of Spatial Autocorrelation in Bounded Regular Tessellations"
- 1997 Presentation at the AAG in Fort Worth. "Some Practical Applications of Moran's I 's Exact Conditional Distribution"

- 1997 Joint-presentation with Stewart Fotheringham and Barry Boots at the conference on "Local Modelling with Spatial Data" in Newcastle-upon-Tyne. "Exploratory Identification of Global and Local Heterogeneities in Disease Mapping"
- 1998 Joint-presentation with Stewart Fotheringham and Barry Boots at the AAG in Boston, "Detecting Spatial Regimes and Local Inconsistencies in Disease Patterns".
- 1998 Presentation at the CAG in Ottawa. "Identifying Hot Spots and Clinical Clusters in Cancer Atlases"
- 1998 Presentation at the 8th *International Symposium in Medical Geography*, in Baltimore, USA. "Modelling Interregional Migration Effects in Spatially Aggregated Non-infectious Diseases with Long Latency"
- 1998 Joint-presentation with Barry Boots at the IGU Commission on Modelling Geographical Systems in Lisbon. "Global and Local Spatial Autocorrelation in Bounded Planar Tessellations"
- 1998 Joint-presentation with Barry Boots at the *Meetings of the International Regional Science Association* in Santa Fe, USA. "The Conditional Correlation between Local Moran's I_i "
- 1999 Presentation at the 95th *Annual Meeting of the American Association of Geographers* in Honolulu, USA. "Causality and Chance: Global and Local Comparisons of Disease Rates".
- 1999 Joint-presentation with Gerhard Braun at the 11th *European Colloquium on Quantitative and Theoretical Geography* in Durham City, England, September 3rd-7th. "Network Autocorrelation in Poisson Regression Residuals: Inter-district Migration Patterns and Trends within Berlin".
- 1999 Joint-presentation with Barry Boots at the 11th *European Colloquium on Quantitative and Theoretical Geography* in Durham City, England, September 3rd-7th. "Alternative Specifications of Local Moran's I_i , their Relation to a Global Spatial Process, and their Intercorrelations".
- 1999 Joint-presentation with Gerhard Braun at the 23rd *Annual Meeting of the Prairie Division of the CAG* in Winnipeg, Canada, September 24th-26th. Spatio-Dynamic Migration Pattern Within the 23 Districts of the City of Berlin 1991-1997.
- 1999 Presentation at the *North American Meetings of the Regional Science Association International* in Montreal, Canada, November 11th-14th. "Approximations of the Exact Distribution of Local and Global Moran's I "
- 2000 Invited presentation at the Free University of Berlin, February 18th. "Spatio-Dynamic Migration Pattern Within the 23 Districts of the City of Berlin 1991-1998"
- 2000 Presentation at the IXth *International Symposium in Medical Geography* in Montreal, July 3rd-7th. "The Statistical Comparison of Spatial Disease Pattern".
- 2001 Presentation at the *Applied Econometric Association Conference held in conjunction with the WRSA Special Fortieth Anniversary Annual Meeting*, Palm Springs, California, February 25-28. "Specification and Distributional Properties of the Spatial Cross-Correlation Coefficient C_{e_1, e_2} "
- 2001 Joint-presentation with Gerhard Braun at the 97th *Annual Meeting of the American Association of Geographer* in New York, February 27. "Inter-district Migration Patterns and Trends 1991 to 1999 within the City of Berlin, Germany"

- 2002 Joint-presentation with Youngho Kim at the 98th Annual Meeting of the American Association of Geographers in Los Angeles, March 23. "Adjusting for Migration Effects in Cancer Disease Mapping by Spatial Filtering"
- 2002 Invited presentation at the NIH GIS-meeting in Bethesda, June 18. "Migration and Hidden Spatial Factors in Disease Mapping"
- 2002 Joint presentation with Dan Griffith at the 49th North American Meetings of the Regional Science Association International in San Juan, Puerto Rico, November 14-16, "Evaluations of an Approximation of Eigenvalue Spectra for Spatial Link Matrices"
- 2002 Joint presentation with Dan Griffith at the 49th North American Meetings of the Regional Science Association International in San Juan, Puerto Rico, November 14-16, "Semi-parametric Filtering of Spatial Autocorrelation"
- 2003 Joint presentation with Young-Ho Kim at the 99th Annual Meeting of the American Association of Geographer in New Orleans, March 4-8, "Analytical Crime Mapping in Urban Environments"
- 2003 Presentation at the 99th Annual Meeting of the American Association of Geographer in New Orleans, March 4-8, "Identification of an Underlying Spatial Process in Disease Mapping"
- 2004 Joint presentation with David Wheeler at the 100th Annual Meeting of the American Association of Geographers in Philadelphia, March 14-19, "A Geographically Weighted Regression Analysis of Bladder Cancer Mortality"
- 2004 Joint presentation with Yongwan Chun at the 100th Annual Meeting of the American Association of Geographers in Philadelphia, March 14-19, "Local Effects of Misspecifications in Interaction Models"
- 2004 Joint presentation with Youngho Kim at the 100th Annual Meeting of the American Association of Geographers in Philadelphia, March 14-19, "Standard errors of OLS estimates under spatial autocorrelation"
- 2004 Discussant at the 100th Annual Meeting of the American Association of Geographers in Philadelphia, March 14-19, session "Open Source Software for Spatial Analysis"
- 2004 Joint presentation with David Wheeler at the 51th Annual North American Meetings of the Regional Science Association International in Seattle, November 11-13, "Spatial structure effects in GWR regression parameters"
- 2004 Joint presentation with Rachel Franklin at the 51th Annual North American Meetings of the Regional Science Association International in Seattle, November 11-13, "Using Migration Flows to Develop Spatial Weights Matrices: An Italian Fertility Example"
- 2005 Presentation at the 101st Annual Meeting of the American Association of Geographers in Denver, April 5-9, "Alternative Specifications of Spatial Link Matrices in the Behavioral Sciences"
- 2005 Joint presentation with Yongwan Chun at the 101st Annual Meeting of the American Association of Geographers in Denver, April 5-9, "Spatial Filtering by Eigenvectors in Iteratively Re-weighted Regression Models"
- 2005 Poster presentation at the NIH/NCI sponsored workshop *The Crossroads of GIS and Health Information. Moving ahead to improve Cancer Control* in Bethesda, June 16-17, "Controlling for Migration Effects in Analytical Disease Mapping"

- 2005 Presentation at the 11th *International Medical Geography Symposium* in Fort Worth, July 5-9, "Controlling for Migration Effects in Ecological Disease Mapping of Prostate Cancer"
- 2005 Joint-Presentation with Yongwan Chun and Roger Bivand at the *Geo-Computation Meeting* in Ann Arbor, MI, August 1-3, "Using open source data analysis environments for prototyping spatial modeling implementations in R"
- 2005 Joint-Presentation with Roberto Patuelli, Daniel A. Griffith and Peter Nijkamp at the *North American Meeting of the Regional Science Association*, Las Vegas, November, "The use of spatial filtering techniques: the spatial and space-time structure of German unemployment data"
- 2006 Joint-Presentation with Yongwan Chun at the 102nd *Annual Meeting of the American Association of Geographers* in Chicago, March 7-11, "Estimating Auto-Poisson Regression Models by Spatial Eigenvector Filtering"
- 2006 Presentation at the 102nd *Annual Meeting of the American Association of Geographers* in Chicago, March 7-11, "Correlation among Local Indicators of Spatial Association"
- 2006 Joint-Presentation with Brian Berry and Daniel A. Griffith at the *Regional Congress of the International Geographical Union* in Brisbane, Australia, July 3-7, "From Spatial Analysis to Geospatial Science"
- 2006 Joint presentation with R. Patuelli, D. Griffith, P. Nijkamp, and M. Tiefelsdorf at the *International Workshop on Spatial Econometrics and Statistics*, Rome May 26, "The use of spatial filtering techniques: the spatial and space-time structure of German unemployment data"
- 2006 Joint-Presentation with R. Patuelli, D. Griffith, M. Tiefelsdorf and P. Nijkamp at the *North American Regional Science Association Annual Meeting*, Toronto, November 11, "Spatial Filtering and Eigenvector Stability: Dynamic Models for German Unemployment Data"
- 2007 Joint-Presentation with Jennifer Hubenig and Jielai Ma at the 103rd *Annual Meeting of the American Association of Geographers* in San Francisco, April 18-21, "Eigenvalue Spectra Approximations of Spatial Link Matrices"
- 2007 Joint-Presentation with Yongwan Chun and Michael Tiefelsdorf at the 103rd *Annual Meeting of the American Association of Geographers* in San Francisco, April 18-21, "Modeling Network Autocorrelation among Migration Flows by Spatial Filtering"
- 2007 Invited Joint-Presentation with Jennifer Hubenig and Michael Tiefelsdorf, *School of Public Health, University of Texas at Houston*, May 14, "The Convenience of Tobacco: Measuring and Examining Disparity in Tobacco Supply and Demand"
- 2008 Invited Joint-Presentation with Dan Griffith, Janis Schubert and Michael Tiefelsdorf at the *GIS Showcase sponsored by The Institute for Innovation and Entrepreneurship (University of Texas at Dallas)*, January 25, "Assessing the Incidence of Crime and Disease: The Challenges of Spatial Statistics"
- 2008 Invited Joint-Presentation with Dan Griffith, Yongwan Chun and Michael Tiefelsdorf at the *Interdisciplinary Statistics Program (University of Texas at Austin)*, February 8, Modeling Spatial Dependencies with and in Inter-regional Flows: A spatial Filtering Approach.

- 2008 Presentation at the 104th Annual Meeting of the American Association of Geographers in Boston, April 15-19, "Spatial Relationship Matrices and their Eigenvectors"
- 2008 Joint-Presentation with George Madrid, Yongwan Chun and Michael Tiefelsdorf at the 104th Annual Meeting of the American Association of Geographers in Boston, April 15-19, "Spatial Filtering of Bladder Cancer Mortalities by Poisson Regression"
- 2008 Joint-Presentation with Chien-Chou Chen and Michael Tiefelsdorf at the 104th Annual Meeting of the American Association of Geographers in Boston, April 15-19, "Tobacco Supply and Demand Mismatch in Northern Dallas"
- 2008 Joint-Presentation with Yongwan Chun at 56th Annual North American Meetings of the Regional Science Association International in New York, Nov. 20-22, "A Universal Misspecification Test for Spatial Autoregressive Models"
- 2009 Joint-Presentation with Chien-Chou Chen at the 105th Annual Meeting of the American Association of Geographers in Las Vegas, April 15-19, "Tobacco Supply and Demand Mismatch in Northern Dallas"
- 2010 Joint-Presentation with Chien-Chou Chen at the 106th Annual Meeting of the American Association of Geographers in Washington, April 14-18, "Estimation of Stratified Small Area Smoking Rates from Global Survey Rate"
- 2010 Joint-Presentation with Sweta Jinnagara Puttaswamy at the North-American Regional Science Association in Denver, November 10-13, "An Analytical Evaluation of the Co-variations among Local Moran's I_s in Autocorrelated Map Patterns"
- 2011 Joint-Presentation with Shaofei Chen at the 107th Annual Meeting of the American Association of Geographers in Seattle, April 11-16, "Optimal Geo-spatial Sampling Designs under Spatial Heterogeneity and Cost Constraints"
- 2011 Joint-Presentation with Chien-Chou Chen at the 107th Annual Meeting of the American Association of Geographers in Seattle, April 11-16, "Small Area Tobacco Demand Estimation with diurnal Commuting Adjustment and Error Evaluation"
- 2011 Presentation at the 107th Annual Meeting of the American Association of Geographers in Seattle, April 11-16, "Local Indicators of Spatial Association and the Multiple Comparison Problem"
- 2012 Presentation at the 108th Annual Meeting of the American Association of Geographers in New York, February 24-28, "Common and Residual Components in Pairs of Spatial Structures"

Creative Works Pertinent to my Professional Focus

<i>Year</i>	<i>Name</i>	<i>Description</i>
Software Development		
1988	<i>LOGIT+</i>	Quasi-Likelihood estimation of the multinomial logistic model under spatial autocorrelation. FORTRAN program integrated with SPSSX as UserProc. This estimation procedure was used in my master's thesis.
1991	<i>BGIS</i>	A DOS program visualizing 1990 census data and election results of the City of Berlin
1994	<i>AnaSpace</i>	A DOS program to perform point pattern analysis and tests

1996	<i>AreaTopo</i>	of spatial auto-correlation in regression residuals Add-In for the Maptitude GIS to generate a spatial link matrix of an areal layer. http://www.directionsmag.com/files/index.php/view/436
1997	<i>Gambini</i>	A Windows GIS utility to calculate multiplicatively weighted Voronoi diagrams
2001	<i>GlobalLocalMoran</i>	An SPSS macro to calculate the probabilities of local and global Moran's <i>I</i> 's under the assumption of global spatial independence. Also available as SPSS script with a Visual Basics interface
2003	<i>SpatialStructure</i>	Add-In for the Maptitude GIS that calculates great circle distances, accessibility indices, spatial networks and adjacency topologies. See: http://www.directionsmag.com/files/index.php/view/521
2004	<i>SpatialFilter</i>	Implementations of a semi-parametric spatial filtering algorithm to remove spatial autocorrelation from regression residuals for SPSS, MatLab and the R-project

Funding

Period	Organization	Title	Amount
1986 - 1987	<i>German Academic Exchange Service</i>	Nine month exchange program with Wilfrid Laurier University, Ontario, Canada	DM 9,000
1993 - 1994	<i>International Council of Canadian Studies</i>	Twelve months Student Research Scholarship	Can\$ 15,000
1998	<i>German Science Foundation</i>	Travel grant to the Annual Meeting of the Association of American Geographers in Boston	DM 1,500
1999	<i>Social Science and Humanities Research Council of Canada</i>	Travel grant to the 11 th European Colloquium in Quantitative Geography in Durham Castle, England	Can\$ 1,200
2001 - 2002	<i>College of Social and Behavioral Sciences</i> (internal seed grant)	Removing Migration Effects through Spatial Filtering from Mortality Rates	\$18,752
2002 - 2005	<i>National Institutes for Health / National Cancer Institute</i>	Principal Investigator: Migration and Hidden Spatial Factors in Disease Mapping	\$147,500
2004 - 2009	<i>National Institutes for Health</i>	Co-investigator at the Population Research Center at the Ohio State University	\$750,000
2004 - 2007	<i>National Science Foundation</i>	Collaborative Research with Daniel A. Griffith, U of Dallas (former U of Miami): Approximating Eigensystems of Matrices Used in Spatial Analysis	\$159,778

2007-2009	<i>National Science Foundation</i>	Michael Tiefelsdorf (Lead-PI) and Daniel A. Griffith: Training Workshop in Spatial Filtering Modeling for Environmental, Health and Social Scientists and Applied. See www.spatialfiltering.com	\$67,374
2009	<i>Caliper Corporation</i>	Maptitude network license for 25 workstations in the GISc teaching lab	\$12,375

Professional and University Citizenship

Editorship

2002-2003 Guest editor jointly with James LeSage and Kelley Pace. Special issue of *Geographical Analysis* on "Spatial Statistics and Spatial Econometrics", Volume 36, 2004.

since 2008 Editorial board member of *Geographical Analysis*

since 2010 Editorial board member of the *Annals of the Association of Geographers*

Consultation

2009 Consultation of Dr. Steven Mentzer's research lab on spatial and statistical pattern analysis Nonsprouting Angiogenesis at the *Brigham and Women's Hospital*, Harvard Medical School, Boston

Review Activities

- *Annals of the Association of American Geographers*
- *Environment and Planning A*
- *Environment and Planning B*
- *Social Science & Medicine*
- *Papers in Regional Science*
- *International Journal of Geographical Information Science*
- *Computers & Geosciences*
- *Encyclopedia of Social Measurements*
- *Geographical Analysis*
- *Journal of Geographical Systems*
- *Stochastic Environmental Research and Risk*
- *Cancer Epidemiology, Biomarkers and Prevention*
- *National Science Foundation*

Review Panels

2005 National Institutes for Health review panel "Community level health promotion study section" (February 2005)

2011 National Institutes for Health review panel "*Deepwater Horizon (DWH) Disaster Research Consortia (U19)*" (April 2011)

Departmental and University Services

1988 to 1996 Chair of the departmental committee for educational computing services in the Department of Geography at the Free University of Berlin. During my tenure as chair we were able to generate DM 700,000 in funds for several departmental computer labs.

1998 to 2000 Member of the *Graduate Committee* and organizer of the Graduate Seminar Series at the University of Manitoba.

1998 to 2000 Chair of the departmental ad hoc committee for technical services at the University of Manitoba. During my tenure as chair we were able to modernize the departmental computing facilities for student instructions (internal grant of Can\$ 75,000) and the departmental webpage.

1999 until 2000 Member of the Dean's committee to develop an Integrate Program in Environmental Systems for the Faculty of Arts and the Faculty of Science at the University of Manitoba.

2002 Member of the *ad-hoc* Committee "Position Statement of the Spatial Analysis and Modeling Track" in the Department of Geography at the Ohio State University

2002 until 2003 Member of the *ad-hoc* Committee "Development of a Human Environmental Undergraduate Track" in the Department of Geography at the Ohio State University

2005 until 2010 Member of the teaching effectiveness committee at UTDallas

2007 until 2011 Member of the Library Committee at UTDallas

2008 Member of the search committee for a program head of the *Geo-Spatial Information Sciences* program at UTDallas

Professional Development

2003 Participation in the course *Spatial Epidemiology: Methods and Applications* (Instructor Professor Dr. **Jon Wakefield**) during the *Summer Program in Applied Statistical Methods*, sponsored by The Ohio State University, Center for Biostatistics

2004 Participation in the course *Epidemiologic Study Design & Analysis* (Instructor Professor Dr. **Kenneth J. Rothman**) during the *Summer Program in Applied Statistical Methods*, sponsored by The Ohio State University, Center for Biostatistics

2009 Annual Affiliates Meeting of the "Texas State Data Center/Business and Industry Data Center" May 12-12, 2009, Austin, TX

Instructional Services

Courses taught at the University of Manitoba:

- *Geographic Information Systems*, 6 credit hours lecture including lab
- *Advanced Geographic Information Systems*, 6 credit hours seminar including lab
- *Research Methods*, 6 credit hours lecture including lab. Required course for all undergraduate and graduate students.

- Seminar in *Medical Geography*, 3 credit hours.

Courses taught at the Ohio State University:

- *Applications of Quantitative Methods in Geography. The Linear Model and Spatial Extension*. 5 credit hours including lab component. Required course for all graduate students
- *Applications of Quantitative Methods in Geography. Spatial Statistical Modeling*. 5 credit hours including lab component. Required course for all graduate students
- *Programming for Geographers with Visual Basic*. 5 credit hours including lab component
- Seminar in *Medical Geography*. 5 credit hours
- Seminar in *Disease Mapping*. 5 credit hours
- Seminar in *Advanced Topics in Population Geography*. 5 credit hours

Courses taught at the University of Texas at Dallas


Graduate Courses:

- Lead Coordinator of GISc capstone course *Geospatial Information Sciences Master's Projects*, 3 credit hours
- Coordinator of *GIScience Ph.D. Research Project Qualifier*, 3 credit hours
- *Geospatial Data Analysis Fundamentals*, required 3 credit hours plus 2 lab hours
- *Spatial Pattern Analysis*. 3 credit hours
- *Demographic Modeling and Analysis*. 3 credit hours
- *Advanced Regression Analysis in the Social Sciences*. Required course, 3 credit hours
- *Regression Analysis with Spatial Application*. Required course, 3 credit hours

Undergraduate Courses:

- Coordinator of the parallel sections *Introduction to Social Statistics with Lab*
- *Introduction to Social Statistics with Lab*. Required course, 4 credit hours
- *Spatial Dimensions of Health and Diseases*. 3 credit hours
- *Population and Development*, 3 credit hours
- *Introduction to Econometrics*. Required course, 3 credit hours
- *Introduction to Social Statistics with Lab*. Required course, 4 credit hours

Workshops:

- Weeklong NSF funded training workshop on Spatial Filtering Modeling for Environmental, Health and Social Scientists and Applied (see <http://www.spatialfiltering.com>).
- Weekend workshop for the general University community *Exploring Geographical Information Systems* (see <http://www.ExploreGIS.spatialfiltering.com>)
- Several sessions for students and faculty introducing to the statistical software environment  and its didactical interface **RCMDR** (see <http://www.ThinkR.spatialfiltering.com>)

Student advising and supervision

- Extensive advising and supervision of Graduate and Ph.D. students on their thesis and projects
- Member of Master's and Ph.D. committees
- Chair of Master's and Ph.D. committees
- My Ph.D. students usually win prizes in national and international competitions.