RESUME

Babak Fahimi
Professor
University of Texas at Dallas
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Education:

Ph.D., Specialized in Power Electronics and Motor Drives. Advisor: Dr. Mehrdad Ehsani
Texas A&M University, College Station, Texas, May 1999.
Topic of Research: *"Control of Vibration in Switched Reluctance Motor Drives"*

MSEE, Specialized in Control and Artificial Intelligence
University of Tehran, Tehran, Iran, May 1993(highest distinction).
Thesis Title: "*Intelligent Control of Cart-Pole System with Emphasis on Reinforcement Learning".*

BSEE, Electrical and Electronics Engineering
University of Tehran, Tehran, Iran, May 1991 (highest distinction).

Personal:

D.O.B: December 13, 1968
Marital status: Married, two children (17 and 11 years old).
Citizenship: USA

Research Interests:

- Optimal harvest and utility grid interface for renewable energy systems.
- Electromechanical energy conversion at macro and micro power levels.
- Application of power electronics in vehicular technologies.
- Applications of power electronics in bio-engineering.
- Numerical analysis of electromagnetic fields in energy conversion devices.
- Application of digital signal processing and advanced control techniques.
- Design and control of power electronics converters/systems.

Experience:

- August 2010-Present Professor of Electrical Engineering, University of Texas At Dallas.
- August 2008-July 2010 of Associate Professor of Electrical Engineering, University Texas at Arlington
- July 2004-May 2008 Assistant Professor of Electrical Engineering University of Texas at Arlington.
- June 2002-July 2004 Assistant professor of Electrical and Computer Engineering, University of Missouri-Rolla.
- April 2000-May 2002 Research scientist at Electro standards laboratories Inc., Cranston, RI.
- June 1999-March 2000 Post Doctoral research associate, Department of electrical and computer engineering, Texas A&M University.
- Sept. 1995-May 1999 Research assistant, Department of electrical and computer engineering, Texas A&M University.
- Sept. 1993-Aug. 1995 Research assistant, RWTH Aachen, Aachen, Germany.

Professional Society Memberships and Services:

- Chairman, Power Electronics committee of IEEE Industrial Electronics Society, 2011-2013.
- Member of AdCom in IEEE Industrial Electronics Society, 2010-2012.
- Chair, 2009 International Future Energy Challenge, IEEE-PELS.
- Senior Member, Institute of Electrical and Electronics Engineering (IEEE).
- Organizer, 2007 International Future Energy Challenge, Topic-B, Integrated Starter/Alternator, IEEE-PELS.
- Chairman, Electric machines and drives committee of IEEE Industrial Electronics Society.
- Chairman of the standards subcommittee in IEEE Industry applications electric machinery committee.
- **Editor in Chief**, IEEE PELS newsletter, 2012- present.
- Editor, IEEE Transactions on Energy Conversion.
- Associate Editor, IEEE Transactions on Industrial Electronics.
- Associate Editor, IEEE Transactions on Power Electronics.
- Associate Editor, IEEE Transactions on Vehicular Technology.
- Associate Editor, Korean Institute of Electrical Engineers.
- Member of the editorial board for international journal of electric power systems and components.
- NSF Panelist for proposal review, Power Systems and power electronics, and SBIR 2001, 2002, 2003, 2005, 2006, 2007, 2008, 2009, 2012.
- Member of Society of automotive engineers (SAE).
- Member of the steering committee of IEEE-VPP conference, 2008-2010.
- Chairman of the steering committee, IEEE-APEC 2011.
- Member of the steering committee, IEEE-IEMDC 2008-2012.

Honors and Awards:

- **Keynote speaker** at IEEE-ESARS 2012, Bologna, Italy, October 2012.
- **Technical Program Chair**, Inaugural IEEE International Transportation Electrification Conference and Exposition, Detroit, MI, June 18-20, 2012.
- **Plenary speaker** at IEEE Applied Power Electronic Conference and Expo, Orlando, February 2012.
- **Keynote speaker** at IEEE Vehicle Power and Propulsion Conference, Chicago, September 2011.
- Recipient of the **Fulbright Scholarship** for Summer 2011(at RWTH –Aachen, Institute for electric machines).
- Distinguished speaker in IEEE Vehicular Technology Society, 2011-2013.
- Guest editor for the special section of IEEE P&E Magazine on Electrification, July 2011. This issue has won the **APEX Grand Prize**.
- Recipient of **Ralph Teetor Educational Award** from Society of Automotive Engineers, April 2008.
- **Keynote speaker** at IEEE International conference on electric machines and systems (ICEMS), South Korea, October 8-11, 2007.
- **Keynote speaker** " Monitoring and fault diagnosis of DC-DC multistage converter for hybrid electric vehicles", IEEE SDEMPED 2005, *International symposium on diagnostics for electric machines, power electronics, and drives*, Vienna, Austria, 7-9 September 2005.
- Recipient of the 2nd prize paper from IEEE-IAS Transactions, in 2006.
- **General Chairman** of 2010 IEEE Applied Power Electronics Conference and Exposition (APEC), Palm Springs, CA.
- **General Chairman** for IEEE Vehicle power and propulsion conference in 2007, Arlington, TX.
- Technical Program Chair for IEEE-APEC in 2009, Washington, DC.
- Technical Program Chair for IEEE International Conference on Electric Machines and Drives (IEMDC), 2005, San Antonio, TX.
- Guest Editor, Special section of IEEE Transactions on Industrial Electronics on switched reluctance machines.
- Guest Editor, Special issue of IEEE Transactions on Industrial Electronics on adjustable speed motor drives.
- Guest Editor, Special issue of IEEE Transactions of Vehicular Technology on electromechanical energy converters in automotive applications.
- Recipient of the **Office of Naval Research young investigator award**, 2004.
- Recipient of the **IEEE Richard M. Bass outstanding young power electronics investigator award** from IEEE Power Electronics society, 2003.
- Recipient of a 2 years DAAD (German academic exchange program) fellowship (1993-1995).
- Listed in Marquis Who's who 2005 and 2006 in engineering and science.
- Listed in Marquis Who's who 2006 in engineering education.
- Society of automotive engineers, Member service award.

- Graduation with the highest distinction in BSEE, and MSEE at University of Tehran, Iran, 1991 and 1993 respectively.

Patents:

- Methods and apparatus for mitigation of vibration in SRM drive, US Patent No. 6,922,036.
- Monitoring and Fault-Diagnosis of single and multi converter power systems, US Patent Number 7,392,143.
- Electric machine having a high torque switched reluctance motor, US Patent Number, 7,663,283.
- Linear induction machine control scheme, systems, and methods, US Patent Number, 7,839,101.
- Electric machine having rotor and stator configurations, US Patent number, 8,022,586.
- Apparatus for the measurement of mutual inductance in a switched reluctance machine, US patent number 8,125,170.
- Methods and systems for phase current reconstruction in ac drive systems, US patent number 8,248,829.
- Methods and apparatus for fault management in permanent magnet synchronous machines using the field reconstruction method, US patent number 8,314,576.

*Dr. Fahimi has 6 more patents pending in the US.

Funded Research:

- Fahimi (100%, PI), $40,000.00, Development of a high frequency dc-dc power converter, GE-Energy, August 2012-August 2013.
- Fahimi (100%, PI), $40,000.00, State of charge monitoring in electrochemical batteries, Bennings Co., June2012-March 2013.
- Fahimi (100%, PI), $80,000.00, Fault tolerant power converter for DSSRM, Texas Instrument Inc., February 2012-January 2014.
- Fahimi (100%, PI), $3,136,768.17, Double stator switched reluctance motor drive for electric traction, ARPA-E, February 2012-January 2015.
- Fahimi (100%, PI), $100,000.00, Double Stator Switched Reluctance Motor Drives, Office of Naval Research, **CNR challenge awardee**, February 2011-January 2012.
- Fahimi (100%, PI), $45,000.00, Sensorless operation of PMSM drives, Texas Instruments Inc., September 2010-May 2011.
- Fahimi (50%, CO-PI), $500,000., Earmark project on smart grid development.
- Fahimi (100%, PI), $220,000., “Development of advanced multi-port energy processor for micro-grid applications”, ArcAngel Tech, Inc., December 1, 2009-December 1, 2010.

- Fahimi (100%,PI), $236,569.," Development of Fault Tolerant Electromechanical Systems via Field Reconstruction Method", National Science Foundation, January 1, 2010-December 31, 2011.
- Fahimi (100%, PI), $118,000., "Experimental development of LSRM drive for deep well pump", Impact Technology, LLC/Shell Inc., June 1, 2009-May 30, 2010.
- Fahimi (100%, PI), $199,732," Development of battery management and SOH monitoring for electric vehicle applications", Arc Angel Tech, LLC., June 1, 2009-May 30, 2010.
- Fahimi (100%, PI), $134,000.00" Multi-physics analysis of electromechanical converters using Field reconstruction method", Office of Naval Research, February 2009-January 2010.
- Fahimi (100%, PI), $140,000.00, "Multi-machine control of linear SRM drives for pump applications", Impact Technologies LLC, Tulsa OK, April 2009-May 2010.
- Fahimi (100% PI)," Novel low cost method to install geophones for CO2 monitoring", $16,000.00. Department of energy Phase-I SBIR, Impact Technologies LLC, Tulsa OK, August 2007-December 2008.
- Fahimi (100% PI)," Design of a plunger system for compressor applications", $160,000.00, Impact Technologies LLC., Tulsa, OK, June 2007-December 2008.
- Fahimi (100%, PI)," Design of super high speed motors for drilling applications", Department of Energy, $82,000.00, 2005-2007.
- B. Fahimi (100%, PI)," Elimination of vibration and acoustic signatures in electromechanical energy conversion devices", $280,000.00, **ONR Young Investigator Award**, September 2004-September 2007.
- B. Fahimi (100%, PI), "Fault diagnostics in the rotor of the large synchronous generators", $75,000, Ameren UE, January 2003-December 31 2004.
- B. Fahimi (50%), S.D. Pekarek (50%, PI), "Electric ship integration initiative", office of naval research, 01/01/2003-12/31/2006, $550,000.
- B. Fahimi (100%, PI)," Detection and diagnosis of anomalies in operation of vector controlled induction machines using electromagnetic and structural signatures", Missouri board of research, 06/01/2003-05/31/2004, $27,750.

*There are more than $1.5M pending proposal at this time.
**During employment at Electrostandards Laboratories, Dr. Fahimi was the program manager for three industrial projects with a budget of $500,000.

Books and Manuscripts:

- B. Fahimi "Switched Reluctance Motor Drives, Simulation, Analysis, Design and Control", under Press, CRC Press, expected date of publication, July 2013.
- B. Fahimi, "Analysis and Design of Electric Machines using Field Reconstruction Method", CRC press, Expected date of publication, September 2013.
- Contributor (1 chapter)," AC machines in Encyclopedia of sustainability science and technology", Springer Verlag, December 2012.
- Contributor (1 chapter) to Industrial Electronics Handbook on," Switched Reluctance Machines", IEEE Press and CRC.
- Contributor (2 chapters) to a Monograph on Permanent magnet synchronous machines in collaboration with Purdue University for Navy.
- Contributor (1 chapter) to "DSP-Based Electromechanical Motion Control", by H. A. Toliyat, CRC Press.
- Contributor to "John Wiley & Sons Encyclopedia on electrical and electronics engineering" (chapter on Switched Reluctance Motor Drives), 1998.
- Co-author of Special problems in Electric Machinery, Manuscript at RWTH Aachen, Institute for Electric Machinery (In German) 1994.
- Contributor (4 chapters) "Handbook of automotive power electronics and motor drives" by Marcel Dekker, March 2005.

Tutorial and lectures:

- Invited distinguish lecture on behalf of IEEE Vehicular Technology at Galveston Chapter, April 2012.
- Tutorial presented at IEEE Industrial Electronics Conference (IECON) Taipei, Taiwan, November 2007.
- Tutorial presented at IEEE Power Electronics Specialists Conference (PESC) 2007, Orlando, FL, June 6, 2007.
- Tutorial presented at IEEE Power Electronics and Exhibition Conference (APEC) 2007, Anaheim, CA, February 26, 2007, Fuel Cell power processing.
- Short Course presented at Army Research Lab (TARDEC) Jan. 11, 2007, Detroit, MI" Design of DC/DC converters for Automotive fuel Cell systems".
- Short course presented at the Army Research Lab (TARDEC), Jan. 12, 2006, Detroit, MI, "Microscopic electromechanical energy conversion: reinventing the art of design for electric machinery".
- Invited talk at Purdue University, Department of electrical engineering," High frequency behavior of electromechanical energy converters", November 2005.
- Plenary speaker at IEEE Symposium on diagnostics of electric machinery, power electronics, and electric drives, Vienna, Austria, September 2005.
- Short course presented at the IEEE-APEC'05, Austin, TX," Optimal control of AC adjustable speed motor drives: a Microscopic approach to energy conversion process".
- Invited Short course at LG Electronics, March 8, 2004, Seoul, Korea," Bipolar Switched Reluctance motor drives".
- Invited short course at Hyundai motor company, March 9, 2004, Seoul, Korea," Fault tolerant Induction motor drives for propulsion applications".

- Invited short course at Changwon national University, March 10, 2004, Changwon, Korea, "Magnetic interpretation of field orientation in AC adjustable speed motor drives.
- Short course presented at the Army Research Lab (TARDEC), Jan. 14, 2004, Detroit, MI, "Reconfigurable motor drives and power electronics-based systems for military vehicles".
- Invited Talk at Illinois Institute of Technology, September 26 2003, Chicago, IL," Electromechanical energy conversion: What's next?".
- Short course presented at the IEEE-IECON'03, November 2-6, 2003, Roanoke, VA, "Applications of Power Electronics in Automotive Industry: State of the Art and Future Possibilities".
- Short course presented at the IEEE-APEC'03, February 9-13, 2003, Miami Beach, FL, "Synthesis of Advanced Control Methodologies for High Grade Adjustable Speed Motor Drives: Theory and Applications".
- Short course presented at the Army Research Lab (TARDEC), Dec. 6, 2002, Detroit, MI, "Fault Resilient Electromechanical Energy Conversion Devices for Drive By Wire Applications".
- Short course presented at the IEEE-IECON'02, November 5-8, 2002, Seville, Spain, "Integration of Advanced Motion Control Devices in automotive Products: Design in the Context of the Application.
- Short course presented at the IEEE-IAS, October 13-17, 2002, Pittsburgh, PA, "Selection, Design, and Control of Adjustable Speed Motor Drives for Stressful & Fault Tolerant Applications".
- Short course presented at the IEEE Applied Power Electronics Conference and Exposition, March 10-14, 2002, Dallas, TX, "Sensorless Control of Adjustable Speed Motor Drives: State of the Art and Recent Advances"
- Short course presented at the IEEE Applied Power Electronics Conference and Exposition, March 4-8, 2001, Anaheim, CA, "Current Intensive Motor Drives: A New Challenge in Automotive Applications"
- Short course presented at the IEEE-APEC 2000, New Orleans, LA**,** " Switched Reluctance Motor Drive: State of the Art and new Advances".

  * In addition Dr. Fahimi has given several speeches to Industry and academia over the past 10 years. This includes speeches at General Motors Advanced Technology center, Delphi automotive, Dana corporation, Wright Patterson Research laboratories, Texas Instruments, Ohio state University, Illinois Institute of technology, etc.

Journal & Magazine Articles:

1. L. Lewis, **B. Fahimi**," New Responses to the rare earth crisis", Magnetics Technology International Journal, 2012, pp. 8-12.

2. P. Shamsi and **B. Fahimi**, "Dynamic Behavior of Multiport Power Electronic Interface under Source/Load Disturbances" accepted for publication in *IEEE Trans. Ind. Electronics,* 2012, available on early access.
3. A. Ranjbar, E. Noboa, and **B. Fahimi**, "Estimation of airgap length in magnetically levitated systems", accepted for publication in *IEEE Trans. Ind. Appl.,*Vol.48, No.6, Nov./Dec., 2012, pp.2173-2181.
4. P. Shamsi and **B. Fahimi**, "Design and development of very high frequency resonant dc-dc boost converters", *IEEE Trans. Power Electron.,* Vol. 27, No. 8, August 2012, pp.3725-3733.
5. A. Ranjbar, A. Banaei, A. Khoobroo, and **B. Fahimi**, "Online estimation of state of charge in Li-ion batteries using impulse response concept", *IEEE Transactions on Smart Grid,* Vol.3, No.1, pp.360-367, 2012.
6. D. Torregrossa, **B. Fahimi**, F. Peyraut, and A. Miraoui, "Fast Computation of Electromagnetic Vibrations in Electrical Machines via Field Reconstruction Method and Knowledge of Mechanical Impulse Response", *IEEE Trans. Ind. Elect.,* Vol.59, No.2, pp.839-847, 2012.
7. C. Lin, W. Wang, M. McDonough, and **B. Fahimi**,"An extended field reconstruction method for modeling of switched reluctance machines", *IEEE Trans. Magn*., vol.48, no.2, pp.1051-1054, Feb. 2012.
8. D. Torregrossa, D. Paire, F. Peyraut, **B. Fahimi**, and A. Miraoui, "Active Mitigation of Electromagnetic Vibrations radiated by PMSM in Fractional Horse Power Drive by Optimal Choice of the Carrier frequency", *IEEE Trans. Ind. Electron.,* Vol.59, No.3, pp.1346-1354, 2012.
9. **B. Fahimi**, A. Kwasinski, A. Davoudi, R. Balog, M. Kiani, "Charge it!", *IEEE Power and Energy Magazine,* pp. 1809-1990, 2011.
10. **B. Fahimi,** Wang. J," Electric Transportation", Guest editorial, *IEEE Power and Energy Magazine,* Vol.9, No.4, pp.14-16, 2011.
11. **B. Fahimi,** Wang. J, "Market Incentives", In my view, *IEEE Power and Energy Magazine,* Vol.9, No.4, pp.94-96, 2011.
12. D. Torregrossa, F. Peyraut, **B. Fahimi**, J. M-Boua, and A. Miraoui, "Multi-Physics Finite Element Modeling for Vibration and Acoustic Analysis of Permanent Magnet Synchronous Machine", *IEEE Trans. Energy Convers.,* Vol.26, No.2, pp.490-500, 2011.
13. A. Khoobroo and **B. Fahimi**, "Magnetic Flux Estimation in Permanent Magnet Synchronous Machine Using Field Reconstruction Method", *IEEE Transactions on Energy Conversion,* Vol. 26, No.3, pp. 757-765, 2011.
14. D. Torregrossa, A, Khoobroo, and **B. Fahimi**, "Prediction of Acoustic Noise and Torque Pulsation in PM Synchronous Machines with Rotor Eccentricity and Partial Demagnetization using Field Reconstruction Method", *IEEE Trans. Ind. Electron*., Vol.59, No.2, pp.934-944, 2011.
15. Wei Jiang and **B. Fahimi**, "Multi-port Power Electronic Interface: Concept, Modeling, and Design", *IEEE Trans. Power Electron.,* Vol. 26, No.7, pp. 1890-1900, 2011.
16. A. Ranjbar, B. Abdi, G. Gharepetian, and **B. Fahimi**, "A comparative study of single and two stage PFC*", International review of electrical engineering,* vol. 5, no. 5, pp.1907-1915, Sep.-Oct. 2010.

17. M.A. Abbasian, M. Moallem, and **B. Fahimi**, "Double-Stator Switched Reluctance Machines (DSSRM): Fundamentals and Magnetic Force Analysis", *IEEE Trans. Energy Convers.*, vol. 25, no.3, pp.589-597, 2010.
18. Wei Wang, M. Kiani, and **B. Fahimi**, "Optimal design of doubly fed induction generators using field reconstruction method", *IEEE Trans. Magn.,* vol.46, no.8, pp.3453-3456, Jul. 2010.
19. Wei Jiang and **B. Fahimi**, "Active current sharing in fuel cell battery hybrid power systems", *IEEE Trans. Ind. Electron.,* vol.57, no.2, pp.752-761, July 2009.
20. Wei Jiang and **B. Fahimi**, "Current reconstruction technique for survivable three phase AC drives ", *IEEE Trans. Power Electron.,* vol.25, no.1, pp. 188-192, Aug. 2009.
21. D. Wu, S. Pekarek, and **B. Fahimi,** "A Voltage-Input-Based Field Reconstruction Technique for Efficient Modeling of the Fields and Forces within Induction Machines", *IEEE Trans. Ind. Electron.*, vol.57, no.3, pp.994-1001, Nov. 2009.
22. D. Wu, S. Pekarek, and **B. Fahimi,** "A Field Reconstruction Technique for Efficient Modeling of the Fields and Forces within Induction Machines", *IEEE Trans. Energy Convers.*, vol.24, no.2, pp.366-374, June 2009.
23. **B. Fahimi**, "On the impact of on-board fuel reformers on the efficiency of fuel cell vehicles" PELS Newsletter, Oct. 2008.
24. **B. Fahimi** and I. Boldea, "Guest Editorial: Special section on electric machines and adjustable speed motor drives (part-II)", *IEEE Trans. Ind. Electron.*, vol.55, no.2, pp.479-480, Feb. 2008.
25. **B. Fahimi** and I. Boldea, "Guest Editorial: Special sections on electric machines and adjustable speed motor drives", *IEEE Trans. Ind. Electron*, vol. 54, no.5, pp. 2363-2364, Oct. 2007.
26. **B. Fahimi** and T. Sebastian, "Guest Editorial: Special section on automotive electromechanical converters", *IEEE Trans. Vehicular Technology*, vol. 56, no.4, pp.1470-1476, July 2007.
27. **B. Fahimi,** "High efficiency and compact DC/DC converter for high power fuel cell systems", *IEEE PELS newsletter*, Aug. 2007.
28. Ali Emadi, Y.P. Patel, and **B. Fahimi**, "Thyristor-based resonant current controlled switched reluctance generator for distributed generation", *KIEE Transactions*, vol. 2, no.1, pp.68-80.
29. R. Jayabalan and **B. Fahimi**, "Diagnosis of solid state DC/DC cascaded converter faults in Hybrid Electric Automotive Power Systems", SAE 2006 *Transactions Journal of Passenger Cars-Electronic and Electrical Systems*, paper no.: 2006-01-0370.
30. R. Jayabalan and **B. Fahimi**, "Next Generation Naval Shipboard Power System: Issues and Challenges", *Marine Engineers Review*, London UK, 2006.
31. A. Mirzaie, M. Moallem, B. Mirzaeian, and **B. Fahimi**, "Design of an optimal fuzzy controller for antilock braking systems", *IEEE Trans. Vehicular Technology*, vol. 55, no.6 , pp. 1725-1730, Nov. 2006.
32. C. S. Edrington, M. Krishnamurthy, and **B. Fahimi**, "An auto-calibrating inductance model for switched reluctance motor drives", *IEEE Trans. Vehicular Technology*, vol. 54, no.4, pp. 2165-2173, Aug. 2007.

33. W. Zhu, S. Pekarek, and **B. Fahimi**, "Investigation of force generation in permanent magnet synchronous machines", *IEEE Trans. Energy Convers*., vol. 22, no.3, pp. 557-565, Sep. 2007.
34. A. Kioumarsi, M. Moallem, and **B. Fahimi**, "Mitigation of Torque Ripple in Interior Permanent Magnet Motors by Optimal Shape Design", *IEEE Trans. Magn.*, vol.42, no.11, pp. 3706 – 3711, Nov. 2006 .
35. R. Jayabalan and **B. Fahimi**, "Monitoring and Fault Diagnosis of Multi-converter Systems in Hybrid Electric Vehicles", *IEEE Trans. Vehicular Technology*, vol.55, no.5, pp. 1475-1484, Sept. 2006.
36. W. Zhu, **B. Fahimi**, and S. Pekarek, "A field reconstruction method for optimal excitation of permanent magnet synchronous machines", *IEEE Trans. Energy Convers*., vol.21, no.2, pp. 305 – 313, June 2006.
37. M. Krishnamurthy, C. S. Edrington, A. Emadi, P. Asadi, M. Ehsani, and **B. Fahimi**, "Making the case for applications of switched reluctance motor technology in automotive products", *IEEE Trans. Power Electron.*, vol. 21, no.3, pp. 659 – 675, May 2006.
38. H. Wang; S. Pekarek, and **B. Fahimi**, "Multilayer control of an induction motor drive: A strategic step for automotive applications", *IEEE Trans. Power Electron*, vol. 21, no. 3, pp. 676 – 686, May 2006.
39. C. H. Rivetta, A. Emadi, G. A. Williamson, R. Jayabalan, and **B. Fahimi**, "Analysis and control of a buck DC-DC converter operating with constant power load in sea and undersea vehicles", *IEEE Trans. Ind. Appl.*, vol.42, no.2, pp. 559-572, Mar.-Apr. 2006,.
40. M. Krishnamurthy, C. S. Edrington, and **B. Fahimi,** "Prediction of rotor position at standstill and rotating shaft conditions in switched reluctance machines", *IEEE Trans. Power Electron.*, vol.21, no.1, pp.225 – 233, Jan. 2006.
41. C. S. Edrington and **B. Fahimi**, "Investigation of electromagnetic force components in SR machines: design and control issues", *IEEE Trans. Ind. Appl.*, vol.41, no.4, pp.1-11, July-Aug. 2005.
42. D. Kaluvagunta and **B. Fahimi**, "Three dimensional magnetic effects in permanent magnet synchronous machines", *IEEE Trans. Magn.*, vol.41, no.8, pp. 2398 - 2405, Aug. 2005.
43. C. S. Edrington, M. Krishnamurthy, and **B. Fahimi**, "Bipolar switched reluctance machines: A novel solution for automotive applications", *IEEE Trans. Vehicular Technology*, vol.54, no. 3, pp.795 - 808, May 2005.
44. **B. Fahimi**, A. Emadi, and R.B. Sepe, "Four-Quadrant Position Sensorless Control in SRM Drives over the Entire Speed Range", *IEEE Trans. Power Electron.*, vol.20, no.1, pp.154 – 163, Jan. 2005.
45. F. R. Salmasi and **B. Fahimi,** "A novel approach to model switched reluctance machines based on decomposition of double magnetic saliency", *IEEE Trans. Magn.*, vol.40, no.3, pp. 1556-1561, May 2004.
46. **B. Fahimi**, A. Emadi, and R.B. Sepe, "A Switched reluctance machine based starter/alternator for more electric cars", *IEEE Trans. Energy Convers*., vol.19, no.1, pp. 116-125, Mar. 2004,.
47. M. Ehsani and **B. Fahimi**, "Position sensorless control of switched reluctance motor drives", *IEEE Trans. Power Electron*, vol. 49, no.1, pp.40-48, Feb. 2002.

48. K.M.Rahman, **B.Fahimi**, G.Suresh, A.V.Rajarathnam and M.Ehsani, "Advantages of Switched Reluctance Motor Applications to EV and HEV: Design and Control Issues", *IEEE Trans. Ind. Appl.*, vol.36, no.1, pp.111-121, Jan.-Feb. 2000.
49. K.M.Rahman, G.Suresh, **B.Fahimi**, A.V.Rajarathnam, and M.Ehsani, "Optimized Torque Control of Switched Reluctance Motor at All Operating Regimes using Neural Network", *IEEE Trans. Ind. Appl.*, vol.37, no.3, pp.904-914, May-June 2001.
50. Emadi, A., **B. Fahimi**, and M. Ehsani, "On the Concept of Negative Impedance Instability in the More Electric Aircraft Power Systems with Constant Power Loads", *SAE Journal*, paper no. 1999-01-2545, 1999.
51. A. Emadi, **B. Fahimi**, M. Ehsani, and J. Miller, "On the suitability of low voltage (42V) electrical power system for traction applications in the parallel hybrid electric vehicles", *SAE Journal*, paper no. 2000-01-1558.
52. **B. Fahimi**, A. Emadi, and R.B. Sepe, "Position sensorless control: presenting technology ready for switched reluctance machine drives applications", January/February 2004 Issue of the *IEEE Industry Applications Society Magazine*, vol. 10, pp. 40-47.
53. **B. Fahimi** and R. B. Sepe, "Driven to excel: Switched Reluctance Motor Technology", October/November 2001 Issue of *Motion Control Magazine*.

Conference Papers:

1. W. Wang, B. Fahimi, "Comparative study of electric drives for EV/HEV propulsion system", presented at IEEE ESARS conference, Bologna, Italy, October 2012.
2. W. Wang, **B. Fahimi**, M. Kiani," Maximum torque per Ampere control of permanent magnet machines", Presented at *International Conference on Electric Machines (ICEM)*, Marseille, France, September 2012.
3. W. Wang, **B. Fahimi**," Maximum torque per Ampere control of switched reluctance machines", presented at *IEEE-ECCE*, Raleigh, NC, September 2012.
4. C. Lin, **B. Fahimi**," Optimization of commutation angles in SRM drives using FRM", *presented at IEEE International Transportation Electrification Conference ITEC 2012*, June 18-20, Detroit, MI, USA.
5. A. Ranjbar, R. Noboa, **B. Fahimi**," Dynamic modeling and stability analysis of magnetically levitated systems", *presented at IEEE International Transportation Electrification Conference ITEC 2012*, June 18-20, Detroit, MI, USA.
6. M. Mahmoodi, M. McDonough, P. Shamsi, **B. Fahimi**, "Peak shaving and minimum cost operation of an electric vehicle charging station based on multi-port power electronics interface", *presented at IEEE International Transportation Electrification Conference ITEC 2012*, June 18-20, Detroit, MI, USA.
7. M. McDonough, **B. Fahimi**, "A study on the effects of motion in inductively coupled vehicular charging applications", *presented at IEEE International Transportation Electrification Conference ITEC 2012*, June 18-20, Detroit, MI, USA.
8. P. Shamsi and **B. Fahimi**, "Modeling of a 3-phase multi-port power electronics interface," accepted for presentation at *IEEE International Symposium on Industrial Electronics, 2012. (ISIE 2012).*28-31 May, 2012.

9. M. McDonough, P. Shamsi, and **B. Fahimi**, "Application of multi-port power electronic interface: plug-in electric vehicle charging platform," accepted for presentation at *IEEE International Symposium on Industrial Electronics, 2012. (ISIE 2012).*28-31 May, 2012.
10. Wei Wang, Chenjie Lin, and **B. Fahimi**, "Comparative analysis of double stator switched reluctance machine and permanent magnet synchronous machine", accepted for presentation at *IEEE International Symposium on Industrial Electronics, 2012. (ISIE 2012).*28-31 May, 2012.
11. Chenjie Lin, Wei Wang, **B. Fahimi**, "Optimal design of double stator switched reluctance machine (DSSRM)", accepted for presentation at *IEEE International Symposium on Industrial Electronics, 2012. (ISIE 2012).* 28-31 May, 2012.
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133. M. D. Bellar, B. K. Lee, **B. Fahimi**, and M. Ehsani, "An ac motor drive with power factor control for low cost applications", presented at *Applied Electronics and Exposition Conference, APEC-IEEE*, Anaheim, CA, Mar. 4-8, 2001, vol.1, pp.601-607.
134. **B. Fahimi**, G. Suresh, and M. Ehsani, "Review of Sensorless methods in switched reluctance motor drives", presented at *IEEE Industry Application Society (IAS) 2000 conference*, Rome, Italy, vol.3, pp.1850-1857.
135. M. Ehsani and **B. Fahimi**, "Switched reluctance motor drives: New solutions to high performance adjustable speed applications", presented at *International Aegean Conference on Electrical Machines and Power Electronics*, Kusadasi, Turkey, June 2001.
136. **B. Fahimi** and M. Ehsani, "Spatial distribution of acoustic field in a switched reluctance motor drive", presented at *IEEE Industry Application Society (IAS) 2000 conference*, Rome, Italy, vol.1, pp.114-118.
137. M. Ehsani, **B. Fahimi,** and I.Panahi, "Recent advances in sensorless control of switched reluctance motor drives", **invited paper** presented at *International Power Electronics Conference, IPEC*, Japan, Apr. 10-14, 2000.
138. A. Emadi, **B. Fahimi**, M. Ehsani, and J. Miller, "On the suitability of low voltage (42V) electrical power system for traction applications in the parallel hybrid electric vehicles", presented at *SAE future car congress* 2000, Washington DC, paper no. 2000-01-1558.
139. **B. Fahimi,** G. Suresh, and M.Ehsani, "Design considerations for switched reluctance motor: vibration and control issues", in *Proc. IEEE Annual Meeting of IAS*, 1999, vol.4, pp.2259-2266.
140. A. Emadi, **B. Fahimi,** and M. Ehsani, "On the concept of negative impedance instability in the more electric Aircraft power systems with constant power loads", *34th IECEC Conference*, Vancouver, May 1999, paper no. 1999-01-2545.
141. **B. Fahimi**, G. Suresh, and M. Ehsani, "Large SRM drives a 1MW case study", presented at *IEEE IEMDC conference*, May 1999, pp.84-86.
142. G.Suresh, **B.Fahimi**, K.M.Rahman, and M.Ehsani, "Inductance Based Position Encoding for Sensorless SRM Drives", presented at *IEEE PESC'99 conference*, Charleston, SC, June 1999, vol.2, pp. 832-837.
143. G.Suresh, **B.Fahimi**, K.M.Rahman, and M.Ehsani, "Four-quadrant Sensorless SRM Drive with High Accuracy at All Speeds", presented at *IEEE APEC'99 conference*, Dallas, Mar. 1999, vol.2, pp.1226-1231.
144. K.M.Rahman, **B.Fahimi**, G.Suresh, A.V.Rajarathnam, and M.Ehsani, "Advantages of Switched Reluctance Motor Applications to EV and HEV: Design and Control Issues", presented at *IEEE Industry Application Society Annual Meeting*, St.Louis, 1998, vol.1, pp.327-334.

145. **B.Fahimi**, G.Suresh, K.M.Rahman, and M.Ehsani, "Mitigation of Acoustic Noise and Vibration in Switched Reluctance Motor Drives using Neural Network Based Current Profiling", presented at *IEEE Industry Application Society Annual Meeting*, St.Louis, 1998, vol.1, pp.715-722.
146. K.M.Rahman, G.Suresh, **B.Fahimi**, A.V.Rajarathnam, and M.Ehsani, "Optimized Torque Control of Switched Reluctance Motor at All Operating Regimes using Neural Network", presented at *IEEE Industry Application Society Annual Meeting*, St.Louis, 1998, vol.1, pp.701-708.
147. G.Suresh, **B.Fahimi**, K.M.Rahman, and M.Ehsani, "Self-tuning Sensorless SRM Drives for Low-cost Mass Production", presented at *IEEE Industry Application Society Annual Meeting*, St.Louis, 1998, vol.1, pp.593-600.
148. M.Ehsani, A.V.Rajarathnam, G.Suresh, and **B.Fahimi**, "Sensorless Control of Switched Reluctance Motors- A Technology Ready for Applications", **invited paper** presented at *International Conference on Electrical Machines (ICEM)*, Istanbul, 1998.
149. A.V.Rajarathnam, **B.Fahimi**, G.Suresh, and M.Ehsani, "Self-tuning Control of Switched Reluctance Motors- The Next Critical Step in Commercial Applications", *International Conference on Electrical Machines (ICEM)*, Istanbul, 1998,.
150. M.Ehsani, A.V.Rajarathnam, **B.Fahimi**, and G.Suresh, "DSP Based Self-tuning Control of Switched Reluctance Motor Drives for Commercial Applications", *DSPFEST*, Houston, 1998.
151. **B.Fahimi**, G.Suresh, J.Mahdavi, and M.Ehsani, "A New Approach to Model Switched Reluctance Motor Drive: Application to Analysis, Design and Control", presented at *IEEE Power Electronics Specialists Conference*, Fukuoka, 1998, vol.2, pp.2097-2102.
152. G.Suresh, **B.Fahimi**, K.M.Rahman, and M.Ehsani, "Analysis of Modulation Methods for Sensorless SRM Drives", presented at IEEE *Industrial Electronics Conference (IECON)*, Aachen, 1998, vol.2, pp.917-922.
153. G.Suresh, **B.Fahimi**, and M.Ehsani, "Improvement of Accuracy and Speed Range in Sensorless Control of Switched Reluctance Motors", presented at *IEEE Applied Power Electronics Conference*, Anaheim, 1998, vol.2, pp.771-777.
154. **B.Fahimi**, G.Suresh, J.P.Johnson, M.Ehsani, M.S.Arefeen, and I.Panahi, "Self-tuning Control of Switched Reluctance Motor Drives for Optimized Torque Per Ampere at All Operating Points", presented at *IEEE Applied Power Electronics Conference*, Anaheim, 1998, vol.2, pp.778-783.
155. J.Mahdavi, G.Suresh, **B.Fahimi**, and M.Ehsani, "Dynamic Modeling of Non-linear SRM using Pspice", presented at *IEEE Industry Applications Society Annual Meeting*, New Orleans, 1997, vol.1, pp.661-667.
156. A.V. Rajarathnam, **B. Fahimi**, and M. Ehsani, "Self tuning control of switched reluctance motor drive using neural networks", *IEEE IAS Conference records*, 1997, vol.1, pp.548-555.
157. **B.Fahimi**, G.Suresh, and M.Ehsani, "Torque Estimation in Switched Reluctance Motor Drive Using Artificial Neural Networks", presented at *IEEE Industrial Electronics Conference (IECON)*, New Orleans, 1997, vol.1, pp.21-26.
158. J.P.Johnson, A.V.Rajarathnam, H.A.Toliyat, G.Suresh, and **B.Fahimi**, "Torque Optimization for a SRM using Winding Function Theory with a Gap Dividing

Surface", presented at *IEEE Industry Applications Society Annual Meeting*, San Diego, 1996, vol.2, pp.753-760.

159. **B. Fahimi**, J.P. Johnson, and M. Ehsani, "Application of artificial intelligence methods in control of switched reluctance motor drives", presented at *IEEE-ETFA conference* records, Hawaii, November 1996, vol.2, pp. 623-628.
160. **B. Fahimi**, G. Henneberger, and A. Weber, "Geometrical optimization of switched reluctance motor using its FE field analysis", *International workshop on optimization and inverse problems in electromagnetics*, Geneva, Switzerland, Conference records, Sep 1994.
161. **B. Fahimi**, and G. Henneberger, "State space control of the cart-pole system", *PCIM 1995, Conference records*, Nuernberg, Germany.
162. **B. Fahimi**, G. Henneberger, and M. Moallem, "Prediction of transient behavior of switched reluctance motor drive using improved equivalent magnetic circuit method", *PCIM 1995, Conference records*, Nuernberg, Germany.
163. A. Broesse, **B. Fahimi**, and G. Henneberger,"Auslegung einer geschalteten Reluktanzmaschine fuer Elektrowerkzeuge (in German)", *International workshop for small servomotors*, Mar. 1996.

Graduate students supervised/under supervision

Ph.D. Students:

1. *Chris Edrington*, Bipolar excitation of the switched reluctance machines.(Completed 2004, UMR). Dr. Edrington is currently an associate professor in Electrical Engineering at Florida State University.
2. *Weidong Zhu*, Numerical tools for the design of permanent magnet synchronous machines (Completed 2004, UMR, Co-chair).
3. *H. Wang*, Multilayer control of adjustable speed induction motor drives (Completed 2004, UMR, Co-chair).
4. *Ranjit Jayabalan*, Enhancement of the stability and survivability of power electronics based systems. (Completed Fall 2006, UTA).
5. *Mahesh Krishnamurthy*, Design and control of Micro-generators based on electrostatic switched reluctance machines (Completed Spring 2008, UTA). Dr. Krishnamurthy is currently an assistant professor at Illinois Institute of Technology.
6. *Haidong Yu*, Sensorless control of linear induction motor drives. (Completed Fall 2007, UTA).
7. *Wei Jiang*, Optimal control of renewable energy sources. (Completed Fall 2009). Dr. Jiang is currently an assistant professor at Yangzhou University in China.
8. *Esteban Ricardo Noboa*, Nonlinear control of magnetically levitated systems (Graduated Summer 2010).

9. *Amir Khoobroo,* Optimal Control of electromagnetic force in Multi-Phase electric machines.(Graduated Spring 2010, UTA)
10. *Anahita Banaei,* Design of an Application Specific Circuit for Battery detection, health monitoring and charging. (Graduated Summer 2010, UTA).
11. *Wei Wang,* Development of optimal control strategies for DFIG wind generators. (Expected to graduate in Fall 2012, UT-Dallas).
12. *Pourya Shamsi,* Development of microscopic intelligent energy harvest/management systems (Graduated in Fall 2012, UT-Dallas).
13. *Chijen Lin,* Development of fault tolerant controller for power electronics driven actuators (Expected to graduate Fall 2013, UT-Dallas)
14. *Amir Ranjbar,* Reliability of Modern Power systems (Graduated in Spring 2013, UT-Dallas).
15. *Matthew McDonough,* Adaptive Control of Electrified Power Trains (Expected to graduate, Spring 2014, UT-Dallas).
16. *Mishel Mahmoodi,* Adaptive control of hybrid micro-grids (Expected to graduate, Fall 2015, UT-Dallas).
17. *Ying Xiao,* State of health monitoring in electrochemical batteries (Expected to graduate Fall 2016, UT-Dallas).
18. *James Chukwuma,* Position sensorless control of BLDC drives using signature detection techniques. (UT-Dallas).
19. *Nasim Arbab,* Analysis and design of non-intrusive power transfer systems for implants. (UT-Dallas).
20. *Lei Gu,* Development of an electromagnetic model for human brain. (UT-Dallas).
21. *Sean Wu,* Volumetric energy conversion in magnetic fluids. (UT-Dallas)

M.S. Students:

1. *Stuart Dixon,* Enhancement of output electric power in SRG drives.(Completed 2003,UMR)
2. *Mahesh Krishnamurthy,* Prediction of the rotor position in SRM drives at standstill and flying shaft conditions (Completed 2004, UMR).
3. *Dinakar Kaluvagunta,* High frequency response of the electromechanical energy conversion devices (Completed 2004, UMR).
4. *Jayeeta Joddar,* Investigation of the transient electromagnetic fields in vector controlled induction motor drives (Completed 2004, UMR).
5. *Nishant Chadha,* Design and control of a magnetically levitated system with 8 degrees of freedom (Completed 2004, UMR).
6. *Amita Jindal,* Design of a multi-level inverter for control of micro-SRM drives. (Completed September 2005, UTA)
7. *Yashar Kenarangui,* Design of an embedded controller for a DC/DC converter (Completed summer 2006, UTA)
8. *Shiju Wang,* Design and testing of a soft switched buck-boost converter for fuel cell applications (Completed Spring 2006, UTA)
9. *Harish gopala Pillai,* Design and development of Embedded DSP controllers for Power Electronics Applications. (Completed May 2006, UTA)

10. *Wei Jiang*, Analysis of electromagnetic field in a switched reluctance machine from an energy conversion perspective (Completed August 2006, UTA).
11. *Matthew Ragsdale,* Development of a neural network-based battery detection scheme. (Completed, Summer 2009, UTA)
12. *Job Brunet, Development of a cold plasma chamber for hydrogen harvesting from bio-fuels(*Completed Spring 2010, UTA)
13. *Banharn Sutthiphornsombat,* Development of smart control interface for permanent magnet synchronous wind generators. (Completed Spring 2010, UTA).
14. *Joseph Herron,* Electromagnetic fields caused by Cold Plasma (Expected to graduate Spring 2012, UT-Dallas).
15. *Mengying Lou,* Analysis of input-output linearization technique for application in multi-port power electronic networks.(UT-Dallas)
16. *Lizon Maharjan,* Design and development of a fault tolerant power converter system for DSSRM drive.(UT-Dallas).

Courses taught/developed

1. EE205 (Electromechanics), undergraduate course at UMR, Fall 2003, Spring 2003.
2. EE305 (Electric drives), Undergraduate/graduate course at UMR, Fall 2002.
3. EE401 (Automotive electronics, **New**), Graduate course at UMR, Spring 2003.
4. EE401 (CAD in electric machinery and lab, **New**), Graduate course at UMR, Spring 2004.
5. EE5309 (Power electronics engineering, **New**), Graduate course at UTA, Fall 2004.
6. EE 5315 (DSP Microprocessors), Graduate course at UTA, Fall 2005.
7. EE 5309 (Electric Drive Control, **New**), Graduate course at UTA, Fall 2005.
8. EE3310 (Microprocessors), Undergraduate course at UTA, Fall 2006.
9. EE 4348(Power Electronics Capstone Design Project), Undergraduate course at UTA, Fall 2006.
10. EE5309 (Electric and Hybrid Electric Vehicles, **New**), Graduate course at UTA, Spring 2007.
11. EE5309 (Renewable Energy Sources, **New),** in collaboration with Dr. Lee and Dr. Tao, Graduate course at UTA, Fall 2007.
12. EE5309 (Sustainable Energy Sources, **New**), Graduate course at UTA, Fall 2008.

Departmental Services:

1. Member of the search committee for EE department head, UT-Dallas.(Fall 2012-Spring 2013)
2. Chairman of the faculty search committee, EE department, UT-Dallas (Spring 2012).
3. Member of the undergraduate committee, EE department, UT-Dallas (Spring 2011-present).
4. Chairman of the committee on sustainability, University of Texas at Dallas (Spring 2011-present).
5. Member of the undergraduate curriculum committee, EE Department, UTA (Fall 2009-present)

6. Member of the search committee for EE Chair position (Fall 2008).
7. Representative of EE department to Faculty Senate (Spring 2008-Fall 2010)
8. Chairman of the EE Search committee for two faculty positions (Fall 2008).
9. Chairman of the faculty development committee, EE Department, UTA.
10. Chairman of the digital and Microprocessor group, EE department, (2005-2007) UTA.
11. Member of the departmental search committee for a faculty position (2006-2007).
12. Member of the departmental committee in re-evaluation of the PhD diagnostic examination.(2005-2006).
13. Development of the power electronics and controlled motion laboratory.
14. Development of a teaching laboratory to support DSP processor course.(Dr. Fahimi has obtained support in amount of $20000 from Texas Instruments to achieve this goal).
15. Development of a series of experimental setups to support EE3310 (Microprocessors).
16. Leading two teams of undergraduate students in IEEE student competitions focusing on Battery Charger design and GPS cars. The team working of undergraduate students working on battery chargers was selected as one of the 6 finalists and competed in the final round as the only US participants. The results of the competition is pending and will be announced in February 2008. Dr. Fahimi obtained $5000.00 in external funding from General Motors Assembly plant in Arlington to support this effort.

Services to Community

1. Presented a seminar on Hybrid Electric vehicles to Society of professional engineers in DFW.
2. Presented a seminar at Academy Junior High school in Fort-Worth to 8^{th} grade students.
3. Presented a seminar to Mid-Cities Engineering society on Hybrid Electric Vehicles.

Professional Developments

1. NSF workshops on teaching Power Electronics, adjustable speed motor drives, and power system courses in 2004, 2005, and 2006.
2. Grant Writing workshop at University of Missouri-Rolla, Spring 2004.