Pourya Shamsi

CONTACT INFORMATION

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As of 25-1-2014

RESEARCH INTERESTS

Micro-grids, renewable energy harvesting, distributed generation, reliability theory, medium voltage (MV) converters, battery management, EV/HEV modeling and design, G2V/V2G, design of electrical machines, high frequency energy harvesting, wireless energy transfer, and power electronic drives.

EDUCATION

The University of Texas at Dallas, Richardson, TX USA
Post Doctorate Research Associate, Electrical Engineering
- Research Topic: *Automotive Drive Systems for Double Stator Switched Reluctance Motors.*

The University of Texas at Dallas, Richardson, TX USA
Ph.D., Electrical Engineering, Nov 2012
- Dissertation Topic: *Stability Assessment of a Multi-Port Power Electronic Interface (MPEI) in a Hybrid Micro Grid.*

The University of Tehran, Tehran, Iran
B.Sc., Electrical Engineering, May 2007
- B.Sc. Project Topic: *UPF, Low THD 3-Phase Grid Tied Rectifier.*

EXPERIENCE

Missouri University of Science and Technology, Rolla, MO
Assistant Professor, Aug 2013 – Present
Teaching, advising, and conducting research on the leading areas of power electronics, smart-grids, sustainable energy systems, energy harvesting, reliability theory, VHF and UHF energy transfer, and motor drives.

The University of Texas at Dallas, Richardson, TX
Post-doctoral Research Associate, Jan 2012 – Aug 2013
Advising, conducting research on motor drives and applications of wide bandgap semiconductors.

The University of Texas at Dallas, Richardson, TX
Graduate Research Assistant, Aug 2010 – Dec 2012
Conducting research on smart-grids, stability assessment of micro-grids, energy management systems, and motor drives.
Advising undergraduate students for IEEE International Future Energy Challenge.

The University of Texas at Arlington, Arlington, TX
Graduate Research Assistant, Aug 2009 – Aug 2010
Conducting research on Very High Frequency dc-dc conversion, Multi-port Power Electronic Interfaces, and renewable energy harvesting.

PATENTS

P. Shamsi, B. Fahimi, "Electric machine assisted ICE" submitted to *The Office of Technology Commercialization*, UT Dallas, under review 2013
P. Shamsi, B. Fahimi, "Single Bus Star Connected Switched Reluctance (SB-SC-SR) Drive" submitted to *The Office of Technology Commercialization*, UT Dallas, Tech-ID 13-002, under review 2013
P. Shamsi, "Single Stage, Transformer-less, 5kW Grid-tied PV Converter" *Iran Patents*, 87A-3048 @ 59503, June 2009

SPONSORED RESEARCH

PI. P. Shamsi, "Stability assessment in a cyber-physical smart-grid," *University of Missouri Research Board*, 1 year, starting June 2014, $47,063.00
PI. P. Shamsi, "Design and development of two 100 kW DSSRM drive system," *Subcontract, University of Texas at Dallas, Department of Energy, ARPA-E*, 1 year, starting Jan. 2014,

$118,046.00

P. Shamsi, "Chancellor's new faculty travel award," *Missouri S&T*, Jan. 2014, $1,500.00

PI. B. Fahimi, **P. Shamsi**, "Low Cost, Fault Tolerant Drive Module for DSSRM," *The Texas Analog Center of Excellence*, 1 year, Aug. 2012, $40,000.00

JOURNAL PUBLICATIONS

P. Shamsi, "Survival Analysis of Power Electronic Converters Using Step-noise Cox Processes," *IEEE Transactions on Industrial Electronics*, Accepted for publication in Nov 2014

P. Shamsi, B. Fahimi, "Stability assessment of a dc-micro grid in a hybrid micro-grid application," *IEEE Transactions on Smart Grids*, Accepted for publication in June 2014

M. Mahmoodi, **P. Shamsi**, B. Fahimi, "Economic dispatch of a hybrid micro-grid with distributed energy storage," *IEEE Transactions on Smart Grids*, Accepted for publication in June 2014

P. Shamsi, M. McDonough, B. Fahimi, "Wide-Bandgap Semiconductor Technology: Its impact on the electrification of the transportation industry" IEEE Electrification Magazine, Dec. 2013

P. Shamsi, B. Fahimi, "Single-bus star-connected switched reluctance motor drive," *IEEE Transactions on Power Electronics*, vol.28, no.12, pp.5578,5587, Dec. 2013

P. Shamsi, B. Fahimi, "Dynamic behavior of multiport power electronic interface under source/load disturbances," *IEEE Transactions on Industrial Electronics*, vol.60, no.10, pp.4500-4511, Oct. 2013

P. Shamsi, B. Fahimi, "Design and development of very high frequency resonant dc-dc boost converters," *IEEE Transactions on Power Electronics*, vol.27, no.8, pp.3725-3733, Aug 2012

CONFERENCE PUBLICATIONS

D. Ursu, **P. Shamsi**, B. Fahimi and I. Boldea, "5 phase BLDC-MRM: Design, Control, FEA and Steady-State Operation Experiments," 14th International Conference on. Optimization of electrical and electronic equipment OPTIM 2014

P. Shamsi, "Extended averaging method for power electronic converters," *Applied Power Electronics Conference and Exposition*, 2014

P. Shamsi, B. Fahimi, "Performance Evaluation of Wide Bandgap Semiconductor Technologies in Automotive Applications", *1st IEEE Workshop on Wide Bandgap Power Devices & Applications*, Columbus, Ohio 2013

P. Shamsi, A. Ranjbar, B. Fahimi, "Performance evaluation of various semiconductor technologies for automotive applications," *Applied Power Electronics Conference and Exposition (APEC), 2013*, pp.3061-3066, 17-21 March 2013.

A. Ranjbar, **P. Shamsi**, B. Fahimi, "Power management in multi-port power electronic interface (MPEI) based on on-line reliability monitoring" *Applied Power Electronics Conference and Exposition (APEC), 2013*, pp.3021-3026, 17-21 March 2013.

M. McDonough, M. Mahmoodi, **P. Shamsi**, B. Fahimi, "Peak shaving and minimum cost operation of an electric vehicle charging station based on multi-port power electronic interface," *Transportation Electrification Conference and Expo (ITEC), 2012 IEEE ,* pp.1-5, 18-20 June 2012.

P. Shamsi, B. Fahimi, "Modeling of a 3-phase Multi-Port Power Electronics Interface with experimental validations," *IEEE International Symposium on Industrial Electronics (ISIE)*, 2012, vol., no., pp.1035-1039, 28-31 May 2012.

M. McDonough, **P. Shamsi,** B. Fahimi, "Application of multi-port power electronic interface: plug-in electric vehicle charging platform," *IEEE International Symposium on Industrial Electronics (ISIE)*, 2012, vol., no., pp.975-980, 28-31 May 2012.

A. Ranjbar, **P. Shamsi**, B. Fahimi, "A novel voter-based Markov model for reliability assessment of multi-port power electronic interface (MPEI)," *Vehicle Power and Propulsion Conference (VPPC)*, 2011 IEEE, pp.1-6, 6-9 Sept. 2011.

M. McDonough, **P. Shamsi**, B. Fahimi, "Application of multi-port power electronic interface for contactless transfer of energy in automotive applications," *Vehicle Power and Propulsion Conference (VPPC)*, 2011 IEEE, vol., no., pp.1-6, 6-9 Sept. 2011.

M. McDonough, **P. Shamsi**, B. Fahimi, "Dynamic modeling of ICPT considering misalignment and speed of vehicle," *Vehicle Power and Propulsion Conference (VPPC)*, 2011 IEEE, pp.1-6, 6-9 Sept. 2011.

P. Shamsi, B. Fahimi, "Remote control of smart appliances using MPEI," *Power Engineering, Energy and Electrical Drives (POWERENG)*, 2011 International Conference on, pp.1-5, 11-13 May 2011.

H. D. Hearron, M. McDonough, A. Ranjbar, W. Wang, C. Lin, **P. Shamsi**, S. Manohar, B. Fahimi, "The sustainability of new technologies in vehicular transportation," *Vehicle Power and Propulsion Conference (VPPC)*, 2011 IEEE, pp.1-6, 6-9 Sept. 2011.

H. Abniki, H. Afsharirad, A. Mohseni, F. Khoshkhati, H. Monsef, **P. Shamsi**, "Effective on-line parameters for transformer monitoring and protection," *North American Power Symposium (NAPS)*, 2010, pp.1-5, 26-28 Sept. 2010.

H. Abniki, H. Afsharirad, A. Mohseni, F. Khoshkhati, H. Monsef, **P. Shamsi**, "Adaptive harmonic estimation technique for reduction the blocking time of transformer for differential protection," *North American Power Symposium (NAPS)*, 2010, pp.1-6, 26-28 Sept. 2010.

TEACHING EXPERIENCE

Missouri University of Science and Technology

- EE 207, *Power system design and analysis*, Fall 2013, Spring 2014
- EE 209, *Power system laboratory*, Fall 2013, Spring 2014

The University of Texas at Dallas

- Short Courses on Power Electronics
  - Intensive courses on power electronics and control.
  - For students of The UT Dallas (UTD) and Texas Christian University (TCU).

Teaching Assistance, Instructor

- The University of Texas at Dallas, University of Tehran.

IEEE SERVICE

On the Editorial board, *IEEE Transportation Electrification e-Newsletter*
Track chair, *IECON,* 2014
Track co-chair, *INTERMAG*, 2012
Session Chair, *APEC*, 2014, Fort-worth 2 sessions
Session Chair, *VPPC*, 2011, Chicago USA
Invited reviewer, *IEEE Transactions on Power Electronics*
Invited reviewer, *IEEE Transactions on Industrial Electronics*
Invited reviewer, *IEEE Transactions on Vehicular Technology*
Invited reviewer, *IEEE Transactions on Energy Conversion*
Invited reviewer, *IEEE Transactions on Industry Applications*
Invited reviewer, *IEEE Transactions on Magnetics*
Invited reviewer, *IEEE Journal of Emerging and Selected Topics in Power Electronics*
Invited reviewer, *International Transactions on Electrical Energy Systems*
Invited reviewer, *Journal of Computational Electronics*
Invited reviewer, *APEC*, 2014
Invited reviewer, *APEC*, 2013
Invited reviewer, *VPPC*, 2011
Invited reviewer, *NAPS*, 2010
IEEE Membership:

- *IEEE member*, *IEEE Power Electronic Society*, *IEEE Industry Applications Society*, *IEEE Industrial Electronics Society, IEEE Power and Energy Society, and IEEE vehicular technology society*

AWARDS

IEEE Best Undergraduate Educational Impact Award, *IEEE International Future Energy Challenge (IFEC)* 2011, University of Texas at Dallas, Spring 2011 (Graduate student advisor).
Best Presenter Award, Applied Power Electronics Conference and Exposition, 2013.
Awarded full B.Sc. fellowship by *University of Tehran.*
Awarded full doctorate fellowship by *The University of Texas at Dallas.*
Ranked 1st in power engineering students, *University of Tehran*, year 2007.