Amir Shahirinia

Residency status: US Permanent Resident (NIW category)

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RESEARCH INTERESTS

Power electronics, Motor drives and Power systems
Renewable Energy Grid Integration
Bayesian statistical analysis and modeling of hybrid systems
Hybrid power systems and smart grid optimal planning
Electricity Markets
Hybrid electric vehicle

EDUCATION

Electrical Engineering/ UW-Milwaukee - (2010 – 2014)
PhD in Electrical Engineering
Dissertation title: Probability Models for Wind-Penetrated Power Systems
Advisors: Prof. D. Yu, Prof. A. Nasiri, Prof. E. Soofi

Electrical Engineering/ K.N.Toosi Univ. of Tech. - (2003 – 2005)
MSc in Electrical Engineering
Dissertation title: Simulation and Software Development for a PV, Wind, Diesel Generator and Battery Bank Hybrid Power System Using Genetic Algorithms
Advisors: Prof. S.M. Tafreshi

Electrical Engineering/ K.N.Toosi Univ. of Tech. - (1998 – 2002)
BSc in Electrical Engineering
Dissertation title: Evaluation of Carrier-based Multilevel Converters
Advisors: Prof. A. Radan

CURRENT POSITION

Research Intern at Low Voltage Multi-Drive Designing Group in Rockwell Automation
Supervisor: Dr. R. Tallam

PUBLICATION

Book chapter

[1] A.Hajizadeh, ***A.H.Shahirinia***, D.C.Yu, Chapter#13 "Power Control of Plug-in Electric Vehicles in Smart Grids", Autonomous Hybrid Vehicles: Intelligent Transport Systems and Automotive Technologies, *NOVA Science Publishers*, INC. (In press, May. 2014, ISBN: 978-606-560-327-1)

Published journal articles

[2] ***A.H.Shahirinia***, A.Hajizadeh, D.C.Yu, A.Feliachi, "Control of a Hybrid Wind Turbine/Battery Energy Storage Power Generation System Considering Statistical Wind Characteristics", *Journal of Renewable and Sustainable Energy* (JRSE), Vol. 4, 2012

[3] P.Naderi, ***A.H.Shahirinia***, O.P.Malik, Power System Stabilization Using Optimal Placement of Stabilizers and Design of Local Robust Controllers," *International Review of Automatic Control* (IREACO)", Vol. 2. n. 2, pp. 163-169- March 2009

[4] ***A.H.Shahirinia***, A.Radan, "Novel Carrier-Based PWM Methods for Multi-Level Inverters", *European Power Electronics and Drives* (EPE), Vol. 18, No. 2, 2008

[5] ***A.H.Shahirinia***, A.Hajizadeh, A.R.Moghaddmjoo, "Genetic-Based Size Optimization of Renewable Energy Sources", *International Journal of Power and Energy Systems* (ACTA Press), Vol. 28, No. 1, 2008
[6] ***A.H.Shahirinia***, S.M.M.Tafreshi, A.Hajizadeh, A.R.Moghaddmjoo, "Optimal Design of Multi-Sources Stand-Alone Hybrid Power System Using Genetic Algorithm", *Journal of Iranian Association of Electrical and Electronics Engineers* (IAEEE), Vol.3, (In Persian), No.2-Fall and winter 2006

Under review journal articles
[7] ***A.H.Shahirinia***, E. Soofi, D.C.Yu, "Simulation of Economic Dispatch outputs for Wind-Penetrated Power System", *International Journal of Electrical Power & Energy Systems* (ELSEVIER)
[8] ***A.H.Shahirinia***, E. Soofi, D.C.Yu, "Stochastic Economic Dispatch Algorithm for High Wind-Penetrated Power Systems", *Journal of Renewable and Sustainable Energy* (JRSE)
[9] A.Hajizadeh, ***A.H.Shahirinia***, D.C.Yu, "Self-Tuning Indirect Adaptive Control of Non-inverting Buck-Boost Converter", Submitted to *International Journal of Electrical Power & Energy Systems* (ELSEVIER)
[10] A.Hajizadeh, ***A.H.Shahirinia***, D.C.Yu, "Intelligent Control of Hybrid Marine Power System", *International Journal of Hydrogen Energy* (ELSEVIER)

In preparation journal articles
[11] ***A.H.Shahirinia***, E.Soofi, D.C.Yu, "New Probabilistic Model for Wind-Penetrated Power Systems; Bayesian Approach", In preparation for *IEEE Transaction Power System*
[12] ***A.H.Shahirinia***, E.Soofi, D.C.Yu, "A New Approach in Simulation of Dependent Wind Speeds; Copula Application", In preparation for *IEEE Transaction Power System*
[13] ***A.H.Shahirinia***, A.Hajizadeh, D.C.Yu, "Optimal Neuro-Fuzzy Control for Power Management and Voltage Ride-through Improvement of Hybrid Wind/Energy Storage Power Generation", In preparation for special issue of the *IEEE Transaction on Sustainable Energy*

Published conference articles
[14] ***A.H.Shahirinia***, A.Hajizadeh, D.C.Yu, "Robust Control of Hybrid Wind / Energy Storage Power Generation System Considering Statistical Wind Characteristics", *IEEE International Power and Energy Conference* (PECON), Kota Kinabalu, Sabah, Malaysia, 2-6 Dece. 2012
[15] A.Hajizadeh, ***A.H.Shahirinia***, D.C.Yu, "Power Control of Autonomous Hybrid Diesel Generator/ Fuel Cell Marine Power System Combined with Energy Storage", *IEEE International Power and Energy Conference* (PECON), Kota Kinabalu, Sabah, Malaysia, 2-6 Dec. 2012
[16] ***A.H.Shahirinia***, S.M.M.Tafreshi, A.Hajizadeh, A.R.Moghaddmjoo, "Optimal Sizing of Hybrid Power System Using Genetic Algorithm", *IEEE International Conference of Future Power Systems*, Amsterdam, Netherlands, Nov. 16-18, 2005
[17] A.Radan, ***A.H.Shahirinia***, M.Falahi, "Evaluation of carrier-Based PWM Methods for Multi-level Inverters", *IEEE International Symposium on Industrial Electronics (ISIE 2007)*, Vigo, Spain, 4-7 Jun. 2007
[18] ***A.H.Shahirinia***, A.Hajizadeh Gastaj, P.Naderi, A.R.Moghaddmjoo, "The Best Size Planning of a PV/Wind, Local Remote Hybrid Power System", *International Conference on Electrical Engineering* (ICEE 2006), Tehran, Iran, (In Persian), 16-18 May 2006
[19] P.Naderi, ***A.H.Shahirina***, S.M.T.Bathaee, Batul Labibi "A New Approach in Decentralized Control of Multi-Machines Large Scale Power System", *International Conference on Electrical Engineering* (ICEE 2006), Tehran, Iran, (In Persian), 16-18 May 2006
[20] ***A.H.Shahirinia***, A.Hajizadeh, S.Arabameri, D.C.Yu, "State of Charge Estimation of Battery Energy Storage for Solar Power Systems ", Submitted to 3rd International Conference on Renewable Energy Research and Applications (ICRERA), Milwaukee, USA, 19-22 Oct. 2014

Under review conference articles
[21] ***A.H.Shahirinia***, A.Hajizadeh, N.Namjoo, D.C.Yu, "Indirect Self-Tuning Control of Non-Inverting DC-DC Converters", Submitted to 3rd International Conference on Renewable Energy Research and Applications (ICRERA), Milwaukee, USA, 19-22 Oct. 2014
[22] A.Hajizadeh, ***A.H.Shahirinia***, F.Roholamin, D.C.Yu, "Maximum Efficiency Tracking of PEM Fuel Cell Power Systems", Submitted to 3rd International Conference on Renewable Energy Research and Applications (ICRERA), Milwaukee, USA, 19-22 Oct. 2014

RESEARCH

University of Wisconsin-Milwaukee, USA, Research Assistant of Prof.D. C. Yu, Prof. Nasiri and Prof. Soofi – (2010-2014)
Renewable Energy Grid Integration Systems (REGIS)
Modeling and intelligent control of REGIS
Stochastic modeling and optimal planning of REGIS
Bayesian statistical analysis and modeling of hybrid systems
Hybrid power systems and smart grid optimal planning and control
Algorithm development for wind-penetrated power system modeling

K.N.Toosi Univ. of Tech., Iran, Research Assistant of Prof. S.M. Tafreshi – (2003-2005)
Renewable Energy Grid Integration Systems (REGIS)
Wind, solar, energy storage and diesel generator modeling in a hybrid system
Hybrid power systems and smart grid optimal planning and control
Algorithm development for HPS optimal planning

K.N.Toosi Univ. of Tech., Iran, Research Assistant of Prof. A. Radan – (1998-2002)
Power electronics and motor drives
Multi-level inverter modeling

TEACHING

University of Wisconsin-Milwaukee, USA
Electromechanical energy conversion lab, Spring 2014
Analytical methods of engineering, Spring 2014
Electric circuit I, Spring 2011
Power electronics, Spring 2010

K.N.Toosi Univ. of Tech., Tehran, Iran
Renewable Energy lab, Spring 2004 and 2005
Power electronics lab, Fall 2004 and 2005
Electric machinery lab, Fall 2003
Digital circuit, Fall 2003

COMPUTER SKILLS

Scientific applications
MATLAB/Simulink, Ansys, Simplorer, PSpice, LTSpice, C/C++, Minitab, WinBUGS, "R", SAS
Operating systems
MSDOS, Windows 95/98/NT, Windows XP, Windows 7
Familiar packages
EMTP, DigSi , HOMER, HYBRID 2, VIPOR, ETAP
Technical drawing
AutoCAD, Microsoft Visio, PhotoShop
Office applications
Microsoft PowerPoint, Access, Excel, Word, Lotus Notes

HONORS AND AWARDS

Chancellor award, Academic Excellence, University of Wisconsin-Milwaukee, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014
Outstanding Teaching Assistant of University of Wisconsin Milwaukee, Spring 2011
Paper Award (2nd rank) ,7th Annual Green Energy Summit, Milwaukee, WI, USA March 24-26, 2010
Outstanding Research Assistant of K. N. Toosi Univ. of Tech., Fall 2005
Outstanding Research Assistant of K. N. Toosi Univ. of Tech., Fall 2004

SYNERGETIC ACTIVITIES

Seminar and invited talks, Guest speaker in couple of universities and conferences
Advising thesis, Serving as supervisor for three undergraduate thesis at K.N.Toosi Univ. of Tech.
Energy expert, Serving as energy expert analyzer for SANA and ADL co. during 2004-2008
Passed advance training courses, passing related courses

REFERENCES

Prof. A. Nasiri, University of Wisconsin-Milwaukee, USA, nasiri@uwm.edu
Prof. D.C. Yu, University of Wisconsin-Milwaukee, USA, yu@uwm.edu
Prof. E. Soofi, University of Wisconsin-Milwaukee, USA, esoofi@uwm.edu
Prof. G. Hanson, University of Wisconsin-Milwaukee, USA, george@uwm.edu
Prof. A. Radan, K. N. Toosi Univesity of Technology, Iran, radan@kntu.ac.ir