







# Seyyed Ali Pourmousavi Kani, Ph.D.

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## Education

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|-----------|---|
| 2009–2014 | <b>Ph.D., Electrical Engineering (emphasis on power systems)</b><br>Montana State University, USA<br><br>Dissertation: <i>Power Management and Frequency Regulation for Microgrid and Smart Grid– A Real-Time Demand Response Approach</i>  |
| 2005–2008 | <b>M.Sc., Electrical Engineering (emphasis on power systems)</b><br>Amirkabir University of Technology (Tehran Polytechnic), Iran<br><br>Thesis: <i>Optimal Operation of a Wind/PV/Super-Capacitor Hybrid Energy System with Very Short-Term Wind Speed and Solar Irradiation Forecasting</i> |
| 2000–2005 | <b>B.Sc., Electrical Engineering (emphasis on power systems)</b><br>University of Mazandaran, Iran<br><br>Final Project: <i>Dynamic Simulation of Three Different Speed Control Techniques for DC Motors</i>  |

## Professional Appointments

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|------------------------|---|
| Mar. 2017<br>Present   | <b>Research Fellow</b> , Global Change Institute, University of Queensland (UQ).                      |
| Jan. 2017<br>Mar. 2017 | <b>Postdoc</b> , DTU Compute, Technical University of Denmark (DTU).                                  |
| Sep. 2015<br>Dec. 2016 | <b>Researcher</b> , Energy Management department, NEC Laboratories America, Inc.                      |
| Nov. 2014<br>Sep. 2015 | <b>Postdoctoral Scientist</b> , Energy Management department, NEC Laboratories America, Inc.          |
| May 2014<br>Nov. 2014  | <b>Power System Engineering Specialist</b> , Market Engineering Support group, California ISO (CAISO) |
| May 2011<br>Aug. 2011  | <b>Summer Research Assistant</b> , Energy Management department, NEC Laboratories America, Inc.       |

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<sup>1</sup><https://scholar.google.com/citations?user=XoHCLowAAAAJ>

<sup>2</sup><https://www.linkedin.com/in/alipourmousavi>

<sup>3</sup><http://publons.com/a/482965/>

<sup>4</sup><http://alipourmousavi.com/>

May 2009 May 2014	<b>Graduate Research Assistant</b> , Electrical and Computer Engineering department, Montana State University
Sep. 2006 May 2008	<b>Graduate Research Assistant</b> , Electrical Engineering department, Amirkabir University of Technology (Tehran Polytechnic)

## Honors & Awards

Nov. 2015	<b>Spot Recognition Award</b> , NEC Laboratories America, Inc. For successful development & demonstration of the battery degradation model for Microgrid management solution
Jul. 2015	<b>Iranian Elite National Talent Recognition</b> , the Irans National Elites Foundation (INEF), Office of Presidency of Islamic Republic of Iran. For exceptionally high intellectual achievements, academic aptitude, and creative ability
March 2015	<b>Spot Recognition Award</b> , NEC Laboratories America, Inc. For establishing NECLA's expertise in grid-scale storage technologies
May 2014	<b>Don Pierre Graduate Student Publication Award</b> , Montana State University For the best journal paper of the year at the ECE department for paper [J5]
May 2011	<b>Don Pierre Graduate Student Publication Award</b> , Montana State University For the best journal paper of the year at the ECE department for paper [J1]
May 2008	<b>High honor and top-ranked recognition</b> Office of Honor Students, Amirkabir University of Technology (Tehran Polytechnic) For achieving 2 <sup>nd</sup> place in the class in total GPA
May 2005	<b>High honor and top-ranked recognition</b> Office of Honor Students, University of Mazandaran For achieving 1 <sup>st</sup> place in the class in total GPA

## Research Interests

Current	Optimal placement and operation of distributed battery, battery degradation modeling, bulk power system operation and electricity market, energy management and inter-operation of microgrids, real-time demand response, voltage and frequency regulation
Past	Wind speed and power forecasting, microgrid power management, dynamic modeling of power system and different components

## Patents

[P6]	<b>S. A. Pourmousavi</b> , M. Parandehgheibi, Kiyoshi Nakayama, and Ratnesh K. Sharma. A Two-Layer Incentive-Based Controller for Aggregating BTM Energy Storage Devices. <i>Under preparation by the legal team</i> , 2016
[P5]	Ali Hooshmand, <b>S. A. Pourmousavi</b> , Ratnesh K. Sharma, Shankar Mohan. A Novel Optimal Battery Sizing Algorithm for Behind-the-Meter Application considering Participation in Demand Response Programs and Demand Charge Reduction. <i>Under preparation by the legal team</i> , 2016
[P4]	<b>S. A. Pourmousavi</b> , Babak Asghari, Ratnesh K. Sharma. Resilient Battery Charging Strategies to Reduce Battery Degradation and Self-Discharging. <i>Under preparation by the legal team</i> , 2016

- [P3] **S. A. Pourmousavi**, Babak Asghari, Ratnesh K. Sharma. An Innovative Framework to Combine Cyclic and Calendar Aging Models. *Under preparation by the legal team* – February, 2016
- [P2] **S. A. Pourmousavi**, Babak Asghari, Ratnesh K. Sharma. Data-Driven Battery Aging Model using Statistical Analysis and Artificial Intelligence. *U.S. Patent Application 20160239592* – February, 2016
- [P1] Babak Asghari, Ratnesh K. Sharma, **S. A. Pourmousavi**. Method for Real-Time Power Management of a Grid-Tied Microgrid to Extend Storage Lifetime and Reduce Cost of Energy. *U.S. Patent 9,020,649*, 2015

## Books

- 2009 **S.A. Pourmousavi**. *Electrical Circuits I&II: Solution Manual*. Payam Daneshgahi press, 320 pages. (In Farsi)

## Journal Publications

- [J10] Mousa Marzband, Masoumeh Javadi, **S. Ali Pourmousavi**, and Gordon Lightbody. An advance retail electricity market for active distribution systems and home microgrid interoperability based on game theory. Submitted to the *Electric Power Systems Research* journal, July. 17, 2017
- [J9] G. De Zotti, **S. Ali Pourmousavi**, H. Madsen, and N.K. Poulsen. Towards a smart energy operating system: A control-based approach. Submitted to the *Energy* journal, Feb. 28, 2017.
- [J8] Reza Ahmadi Kordkheili, **Pourmousavi**, **Seyyed Ali**, Mehdi Savaghebi, Josep M Guerrero, and Mohammad Hashem Nehrir. Assessing the potential of plug-in electric vehicles in active distribution networks. *Energies*, 9(1):34, 2016
- [J7] **Pourmousavi**, **S Ali**, M Hashem Nehrir, and Ratnesh K Sharma. Multi-timescale power management for islanded microgrids including storage and demand response. *IEEE Transactions on Smart Grid*, 6(3):1185–1195, 2015
- [J6] **Pourmousavi**, **S Ali**, Stasha N Patrick, and M Hashem Nehrir. Real-time demand response through aggregate electric water heaters for load shifting and balancing wind generation. *IEEE Transactions on Smart Grid*, 5(2):769–778, 2014
- [J5] **Pourmousavi**, **S Ali** and M Hashem Nehrir. Introducing dynamic demand response in the lfc model. *IEEE Transactions on Power Systems*, 29(4):1562–1572, 2014
- [J4] **Pourmousavi**, **S Ali** and M Hashem Nehrir. Real-time central demand response for primary frequency regulation in microgrids. *IEEE Transactions on Smart Grid*, 3(4):1988–1996, 2012
- [J3] **Kani**, **SA Pourmousavi** and MM Ardehali. Very short-term wind speed prediction: a new artificial neural network–markov chain model. *Energy Conversion and Management*, 52(1):738–745, 2011
- [J2] **Kani**, **SA Pourmousavi**, GH Riahy, and D Mazhari. An innovative hybrid algorithm for very short-term wind speed prediction using linear prediction and markov chain approach. *International journal of green energy*, 8(2):147–162, 2011
- [J1] **Pourmousavi**, **S Ali**, M Hashem Nehrir, Christopher M Colson, and Caisheng Wang. Real-time energy management of a stand-alone hybrid wind-microturbine energy system using particle swarm optimization. *IEEE Transactions on Sustainable Energy*, 1(3):193–201, 2010

## Conference Publications

- [C25] Yelena Vardanyan, Frederik Banis, **S. Ali Pourmousavi**, and Henrik Madsen. Optimal coordinated bidding of a profit-maximizing EV aggregator under uncertainty. *Submitted to the ENERGYCON*, Limmasol, Cyprus, Sep. 2017
- [C24] Md Mehedi Hasan, **S. Ali Pourmousavi**, Feifei Bai, and Tapan Kumar Saha. The impact of temperature on battery degradation for large-scale BESS in PV plant. *Accepted for presentation in the AUPEC*, Melbourne, Australia, July 2017
- [C23] G. De Zotti, **S. Ali Pourmousavi**, H. Madsen, and N.K. Poulsen. A framework for controlling electricity load in integrated energy systems. *Submitted to the Power-Gen Europe Conference*, Cologne, Germany, June 2017
- [C22] M. Parandehgheibi, **S. Ali Pourmousavi**, Kiyoshi Nakayama, and Ratnesh K. Sharma. A two-layer incentive-based controller for aggregating BTM energy storage devices. *In Proc. the IEEE PES General Meeting*, Chicago, USA July 16-20, 2017
- [C21] **Pourmousavi, S. A.**, M. Behrangrad, A. Jahanbani Ardakani, and M. Hashem Nehrir. Ownership Cost Calculations for Distributed Energy Resources Using Uncertainty and Risk Analyses. *ArXiv e-prints*, September 2017
- [C20] Shankar Mohan, Ali Hooshmand, **Pourmousavi, S Ali**, and Ratnesh Sharma. Bss sizing and economic benefit analysis in grid-scale application. In *Innovative Smart Grid Technologies Conference (ISGT), 2016 IEEE Power & Energy Society*, pages 1–5. IEEE, 2016
- [C19] **Pourmousavi, S Ali**, Babak Asghari, and Ratnesh K Sharma. A novel algorithm to integrate battery cyclic and calendar agings within a single framework. In *Innovative Smart Grid Technologies Conference (ISGT), 2016 IEEE Power & Energy Society*, pages 1–5. IEEE, 2016
- [C18] **Pourmousavi, S Ali**, Mahdi Behrangrad, M Hashem Nehrir, and Ali Jahanbani Ardakani. Lfc model for multi-area power systems considering dynamic demand response. In *Transmission and Distribution Conference and Exposition (T&D), 2016 IEEE/PES*, pages 1–5. IEEE, 2016
- [C17] Reza Ahmadi Kordkheili, **Pourmousavi, S Ali**, Jayakrishnan R Pillai, Hany M Hasanien, Birgitte Bak-Jensen, and M Hashem Nehrir. Optimal sizing and allocation of residential photovoltaic panels in a distribution network for ancillary services application. In *Optimization of Electrical and Electronic Equipment (OPTIM), 2014 International Conference on*, pages 681–687. IEEE, 2014
- [C16] Kevin Marchese, **Pourmousavi, SA**, and MH Nehrir. The application of demand response for frequency regulation in an islanded microgrid with high penetration of renewable generation. In *North American Power Symposium (NAPS), 2013*, pages 1–6. IEEE, 2013
- [C15] **Pourmousavi, SA**, AS Cifala, and MH Nehrir. Impact of high penetration of pv generation on frequency and voltage in a distribution feeder. In *North American Power Symposium (NAPS), 2012*, pages 1–8. IEEE, 2012
- [C14] AJ Litchy, C Young, **Pourmousavi, SA**, and MH Nehrir. Technology selection and unit sizing for a combined heat and power microgrid: Comparison of webopt and homer application programs. In *North American Power Symposium (NAPS), 2012*, pages 1–6. IEEE, 2012
- [C13] **Pourmousavi, Seyyed Ali** and Mohammad Hashem Nehrir. Real-time optimal demand response for frequency regulation in smart  $\mu$ grid environment, 2012
- [C12] **Pourmousavi, S Ali**, Ratnesh K Sharma, and Babak Asghari. A framework for real-time power management of a grid-tied microgrid to extend battery lifetime and reduce cost of energy. In *Innovative Smart Grid Technologies (ISGT), 2012 IEEE PES*, pages 1–8. IEEE, 2012

- [C11] **Pourmousavi, SA**, MH Nehrir, and C Sastry. Providing ancillary services through demand response with minimum load manipulation. In *North American Power Symposium (NAPS), 2011*, pages 1–6. IEEE, 2011
- [C10] **Pourmousavi, SA** and MH Nehrir. Demand response for smart microgrid: Initial results. In *Innovative Smart Grid Technologies (ISGT), 2011 IEEE PES*, pages 1–6. IEEE, 2011
- [C9] CM Colson, MH Nehrir, and **Pourmousavi, SA**. Towards real-time microgrid power management using computational intelligence methods. In *Power and Energy Society General Meeting, 2010 IEEE*, pages 1–8. IEEE, 2010
- [C8] **Kani, SA Pourmousavi** and GH Riahy. A new ann-based methodology for very short-term wind speed prediction using markov chain approach. In *Electric Power Conference, 2008. EPEC 2008. IEEE Canada*, pages 1–6. IEEE, 2008
- [C7] **Pourmousavi, SA**, SM Mousavi, A Kashefi Kaviani, and GH Riahy. Very short-term wind speed prediction using linear regression among ann and markov chain. In *The International Conference on Power System Analysis, Control and Optimization (PSACO-2008)*, 2008
- [C6] E Safavieh, A Jahanbani Ardakani, A Kashefi Laviani, **Pourmousavi, SA**, SH Hosseinian, and M Abedi. A new integrated approach for very short-term wind speed prediction using wavelet networks and pso. In *Proceedings of the International Conference on Power Systems*, 2007
- [C5] A Jahanbani Ardakani, A Kashefi Kavyani, **Pourmousavi, SA**, SH Hosseinian, and M Abedi. Siting and sizing of distributed generation for loss reduction. *International Carnivorous Plant Society*, pages 1–6, 2007
- [C4] **S. A. Pourmousavi**, A. Jahanbani Ardakani, A. Kashefi Kaviani, and G. H. Riahy. Short-term wind speed prediction using MLP Neural Networks trained by PSO algorithm in wind turbine applications. In *Proc. of 22<sup>nd</sup> International Power System Conference (PSC07)*, Nov. 19-21, Tehran, Iran 2007 (IN FARSI)
- [C3] **Kani, Seyyed Ali Pourmousavi** and Nima Farrokhzad Ershad. Annual electricity demand prediction for iranian agriculture sector using ann and pso. In *Electrical Power Conference, 2007. EPC 2007. IEEE Canada*, pages 446–451. IEEE, 2007
- [C2] A. Kashefi Kaviani, **S. A. Pourmousavi** and A. Jahanbani Ardakani. Multi-layer Artificial Neural Networks training using PSO algorithm. In *Proc. of 1<sup>st</sup> Joint Congress on fuzzy and Intelligent Systems (FIS07)*, Aug. 30-31, Mashhad, Iran 2007 (IN FARSI)
- [C1] Nima Farrokhzad Ershad and **S. A. Pourmousavi**. Dynamic modeling and simulation of a PEMFC for DG Applications. In *Proc. of 6<sup>th</sup> Iranian Energy Symposium*, Jul. 23-25, Tehran, Iran 2007 (IN FARSI)

## Research/Professional Experience

- Mar. 2017 Present **Research Fellow** at the Global Change Institute (GCI)  
*University of Queensland, St Lucia, St Lucia, Australia*
- Working with UQ Solar on UQ Gatton 3.275 MWp PV plant and 600 kW/760 kWh onsite battery storage

- Jan. 2017  
Mar. 2017
- Postdoc** at the Department of Applied Mathematics and Computer Science (DTU Compute)  
*Technical University of Denmark (DTU), Lyngby, Denmark*
- Led development of work package 6 (called Integrated energy system assessment tools) in a grant proposal (called Flexibility Services and Activating Consumers in a Renewables Based Electricity System - Modeling, Market Design and Business Models (FLEX-ACES)) by leading scientists from University of Newcastle, Aalborg University, TU-Berlin, and DIW-Berlin. Application is submitted to LCE-05-2017 call by the European Commission Horizon 2020
  - Worked on work packages 2, 4, and 5 of the SmartNet project (<http://smartnet-project.eu/>) to provide tools for optimal interactions among TSO and DSOs in a massive renewable generation environment, funded by LCE-6-2015 Research and Innovation Actions call, €12.657.928,00 funded by the European Commission Horizon 2020
  - Collaboration with a postdoc fellow on EVs battery modelling for optimal aggregation problem, and co-supervising a Ph.D. student in line with SmartNet project
- Sep. 2015  
Present
- Researcher** at the Energy Management Department  
*NEC Laboratories America, Cupertino, CA, USA*
- Developed and assessed Li-Ion battery degradation model based on mechanical fatigue analysis and incremental capacity analysis (ICA) on the experimental data, provided by our industrial partner
  - Proposed and implemented new MILP objective functions and constraints in the energy management system (EMS) using GLPK<sup>®</sup> to improve battery life cycle by controlling its charging and discharging levels
  - Developed a new approach integrating battery degradation model in the EMS for grid-tied and islanded microgrids
  - Co-supervised and actively participated in a project to design an algorithm for optimal battery sizing in behind-the-meter (BTM) applications considering its lifetime, energy and demand charge reduction, and ability to participate in demand response programs (DRPs) by formulating a novel MILP optimization formulation for event and non-event days in GLPK<sup>®</sup> package
  - Developing an analytical algorithm (mechanical fatigue model) for Li-Ion battery degradation to improve stability in battery capacity estimation
  - Working on failure modeling and analysis of a microgrid at device level to improve resiliency of the system
  - Involved in hiring, defining project, and coaching postdoctoral scientists and interns at NECLA
- Nov. 2014  
Sep. 2015
- Postdoctoral Scientist** at the Energy Management Department  
*NEC Laboratories America, Cupertino, CA, USA*
- Battery sizing for an islanded Microgrid in the presence of large PV generation and multiple diesel generators considering battery lifetime for an Australian mining site and a banana field in Indonesia using GLPK<sup>®</sup> and Gurobi<sup>®</sup> optimization packages

- Conducted comprehensive statistical analyses (*p-statistics* and *null-hypothesis test*, *ridge* and *lasso* regressions and so on) to determine the most significant parameters in the battery cyclic and calendar agings
- Developed a new ANN-based model of battery degradation for cyclic and calendar agings individually
- Proposed and implemented a novel algorithm to integrate cyclic and calendar aging models of any type in a single framework to improve battery capacity estimation
- Designed a comprehensive MATLAB<sup>®</sup>-based toolbox for battery cyclic and calendar aging training and testing for a client

May. 2014 **Power System Engineering Specialist** at the Market Engineering Support (MES) group  
 Oct. 2014 *California ISO (CaISO), Folsom, CA, USA*

- Worked on complex engineering, market, and optimization assignments
- Provided expertise on studies and acted as project coordinator in the design, engineering, and testing of market software
- Involvement in design considerations and implementations of advanced power technologies to fully utilize the market operations and reliability of the grid through the use of power system
- Supported grid operators to analyze and explain unit commitment and dispatches continuously and promptly fix and correct any system issues and/or find a workaround to keep operations running reliably
- Integrating, enhancing, improving, testing, and supporting Day-Ahead Market (DAM), Real-Time Market (RTM), Market Quality Services (MQS) applications
- Performed all functional testing of existing applications and new features added in the domain of the DAM, the RTM, and the MQS
- Ensured complete and accurate documentation of implemented application or modification is developed and maintained to provide permanent records or system component and backup material with a focus on adherence to requirements and compatibility of all segments of the project including the quality of the work done by others

May. 2009 **Graduate Research Assistant** at the Electrical and Computer Engineering department  
 May. 2014 *Montana State University, Bozeman, MT, USA*

- Grid-tied and islanded Microgrid optimal design using HOMER<sup>®</sup> and WebOpt<sup>®</sup> software packages with different renewable generation sources (such as the wind and solar PV) and storage devices (such as VRLA batteries, solid-oxide and PEM fuel cells)
- Conducted detailed dynamic model of generation sources (e.g., wind, solar PV), storage devices (e.g., VRLA batteries and SOFC and PEMFC), and responsive loads (e.g., electric water heaters (EWHs)) in MATLAB/Simulink<sup>®</sup> and PSCAD<sup>®</sup>
- Enhanced load frequency control (LFC) model for dynamic small-signal stability studies at transmission level by adding DR loop to the original model in MATLAB/Simulink<sup>®</sup>
- Proposed and verified novel real-time optimal power/energy management for islanded microgrid in presence of renewable generation on small and medium size microgrid in MATLAB/Simulink<sup>®</sup> and m-files
- Evaluated the impact of different PV penetration level at distribution feeder and proposed a DR control strategy to overcome large frequency and voltage variations

- Developed an EWH thermostat setpoint control strategy to provide required balancing reserve signal in a large transmission system
  - Co-supervising multiple M.Sc. students by defining research topics and methodologies, designing and troubleshooting MATLAB<sup>®</sup> codes and simulation algorithms, and paper proof-reading
- May. 2011 **Summer Research Assistant** at the Energy Management Department  
 Aug. 2011 *NEC Laboratories America, Cupertino, CA, USA*
- Designed a small-scale grid-tied microgrid using HOMER<sup>®</sup> software which included Wind, PV, diesel generator, and Battery
  - Developed detailed dynamic model of the microgrid in MATLAB/Simulink<sup>®</sup> using SimPowerSys<sup>®</sup> toolbox
  - Proposed a novel Li-Ion battery operational cost model based on engineering economic analysis and battery lifetime model in MATLAB/m-files<sup>®</sup>
  - Designed an optimal real-time power management strategy for cost reduction and battery lifetime extension for the designed microgrid in MATLAB/Simulink<sup>®</sup>
- Sep. 2006 **Graduate Research Assistant** at the Electrical Engineering Department  
 May. 2008 *Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran*
- Designed an intelligent control algorithm based on very short-term wind speed prediction for wind turbines in an islanded microgrid with solar PV and super-capacitor
  - Implemented detailed dynamic model of the wind turbine and induction generator, PV solar panels, super-capacitor and their power electronic interfaces in MATLAB/Simulink<sup>®</sup>
  - Simulated a four-quadrant DC-DC copper and a PI controller for charging/discharging super-capacitor to partially suppress wind generation variations
  - Developed multiple very short-term wind speed prediction algorithms using Markov chain, linear regression, and artificial neural network (ANN) in MATLAB/m-files<sup>®</sup>
  - Developed a three-phase pipe-type cable model with/without earth return wire for a transient modeling software package
  - Designed and implemented an ANN-based intelligent energy audit software package for energy auditing in residential and commercial buildings, using VB 6.0

## Invited Talk

Oct. 2017 **Big Data Tools and Procedures in Power Systems Research**  
 by the *IEEE Queensland Student Chapter*, Australia

Introduced Data Science procedure and tools useful in power systems research with live demos.

## Teaching Experience & Student Supervision

**TA** | Montana State University, USA

- Taught PowerWorld<sup>®</sup> in *Power System Analysis* class for a couple of semesters
- Taught *Linear Control* class for a couple of sessions

**Lecturer** | Islamic Azad University, Iran

- Electric Circuits and Lab



<b>TA</b>	University of Mazandaran, Iran <ul style="list-style-type: none"> <li>• Electric Circuits I &amp; II</li> <li>• Power System Analysis I &amp; II</li> <li>• Differential Equation</li> </ul>
<b>Ph.D. Students</b>	<ul style="list-style-type: none"> <li>• <a href="#">Giulia De Zotti</a>, Denmark Technical University (DTU)</li> </ul>
<b>Research Interns</b>	<ul style="list-style-type: none"> <li>• <a href="#">Dr. Marzieh Parandehgheibi</a>, Ph.D. from Massachusetts Institute of Technology (MIT) <i>Current Appointment:</i> Senior Data Scientist at NEXTEV</li> <li>• <a href="#">Shankar Mohan</a>, Ph.D. candidate at the University of Michigan - Ann Arbor</li> </ul>
<b>PhD Visiting Scholar</b>	<ul style="list-style-type: none"> <li>• <a href="#">Dr. Reza Ahmadi</a>, Ph.D. from Aalborg University</li> </ul>
<b>M.S. Students</b>	<ul style="list-style-type: none"> <li>• Md Mehedi Hasan, The University of Queensland</li> <li>• <a href="#">Colin Young</a>, Montana State University</li> <li>• <a href="#">Jonathan Wilson</a>, Montana State University</li> <li>• Stasha Patrick, Montana State University</li> <li>• Aric Litchy, Montana State University</li> <li>• Kevin Marchese, Montana State University</li> </ul>

## Journals Peer Reviewer

<b>IEEE</b>	IEEE Transactions on Power Systems, ISSN: 0885-8950 IEEE Transactions on Smart Grid, ISSN: 1949-3053 IEEE Transactions on Sustainable Energy, ISSN: 1949-3029 IEEE Systems Journal, ISSN: 1932-8184 IEEE Transactions on Networking, ISSN: 1063-6692
<b>IET</b>	IET Generation, Transmission and Distribution, ISSN: 1751-8695 IET Renewable Power Generation, ISSN: 1752-1424
<b>Elsevier</b>	Applied Energy, ISSN: 0306-2619 Energy Conversion and Management, ISSN: 0196-8904
<b>Taylor &amp; Francis</b>	Electric Power Component and Systems, ISSN: 1532-5016 International Journal of Green Energy, ISSN: 1543-5083

## Research Funding Resources

Feb. 2013 May 2014	Real-Time Energy Management of an Islanded Microgrid for Frequency and Voltage Regulation. <i>Sponsored by:</i> NEC Labs America, Cupertino, CA.
Sep. 2011 Feb. 2013	Making the Grid Smart through Smart Microgrids: Real-Time Power Management of Microgrids with Multiple Distributed Generation Sources Using Intelligent Control. <i>Sponsored by:</i> U.S. DOE—DE-FG02-11ER46817 Award.

May. 2010	Frequency and Voltage Regulation by DR inside of a Microgrid within a Smart Grid Environment.
Sep. 2012	<i>Sponsored by:</i> Pacific Northwest National Lab (PNNL)—DE-AC05-76RL01830 Award.
June 2009	Energy Management of Islanded Hybrid Energy System using Heuristic Methods.
Apr. 2010	<i>Sponsored by:</i> Pacific Northwest National Lab (PNNL)—DE-AC05-76RL01830, and by the National Science Foundation (NSF)—ECS-0823865.

## Computer Skills

Programming	MATLAB, C++, Visual Basic 6.0
Software	PSCAD, PowerWorld, MATLAB Toolboxes including Simulink, SimPowerSystem , optimization, neural network, curve fitting, control system, and graphical user interface (GUIDE), familiar with DIGSI-LENT, HOMER, DER-CAM, Pspice, LINGO, MotorMaster
Optimization	GLPK, Gurobi, IBM CPLEX, GAMS, Particle Swarm Optimization (PSO), Genetic Algorithm (GA)
Front-end Web	HTML/HTML5, CSS/CSS3, jQuery, AngularJS
General	Microsoft Office (Word, Excel, PowerPoint, Outlook, OneNote), L <sup>A</sup> T <sub>E</sub> X

## Professional Affiliation

Since 2017	Secretary, IEEE Joint Chapter of Power Electronics/Industrial Electronics/ Industry Applications Societies
Since 2007	Power & Energy Society (PES) member, IEEE (S'07,M'15)
Since 2017	MIEAust, The Institution of Engineers Australia
Since 2017	Electric Energy Society of Australia (EESA), Engineers Australia (EA)

## Professional Training

2016	<p><b>Energy Storage: An introduction to Technologies, Applications and Best Practices</b>, by IEEE</p> <p>One day tutorial at the IEEE PES T&amp;D conference on the basics and state-of-the-art of bulk energy storage for power systems applications</p> <ul style="list-style-type: none"> <li>◇ Basics of energy storage technologies and application</li> <li>◇ Cost-effective energy storage applications through bundling of grid services</li> <li>◇ Valuation of energy storage: Wholesale markets, distribution support and behind-the-meter</li> </ul>
2016	<p><b>Internet of Things (IoT): Roadmap to Connected World</b>, by Massachusetts Institute of Technology (MIT)</p> <p>Introduces both the broad range of IoT technologies and the most recent developments in the space, 1-month online training course with certificate upon completion</p> <ul style="list-style-type: none"> <li>◇ Discover key IoT concepts including identification, sensors, localization, wireless protocols, data storage and security</li> <li>◇ Explore IoT technologies, architectures, standards, and regulations</li> <li>◇ Realize the value created by collecting, communicating, coordinating, and leveraging the data from connected devices</li> <li>◇ Examine technological developments that will likely shape the industrial landscape in the future</li> <li>◇ Understand how to develop and implement your own IoT technologies, solutions, and applications</li> </ul>

- 2016 | **Managing Chaos**, by American Management Association (AMA)  
Tools to set priorities and make decisions under pressure, 2-day onsite training with certificate
- ◇ Define Chaos within your Control
  - ◇ Thinking and decision making
  - ◇ Priority planning
  - ◇ Plan daily work
  - ◇ Assertive communication
  - ◇ Action plan
- 2015 | **Essentials of Project Management for Non-Project Manager**, by American Management Association (AMA)  
Tools for managing your project (for non-managers), 2-day onsite training with certificate
- ◇ Getting your hands around project management
  - ◇ How to work successfully with others
  - ◇ Getting it off the ground
  - ◇ Planning the work
  - ◇ Working the plan
  - ◇ Putting it to bed

## Selected Graduate Courses

- Ph.D.**
- ◇ Introduction to Modern Control
  - ◇ Electric Power Systems
  - ◇ Advanced Power Electronics (Inverters)
  - ◇ Power Electronics (DC-DC Converters)
  - ◇ Advanced Topics in Controls (Optimal Control)
  - ◇ Sequential State Estimation
- M.Sc.**
- ◇ Energy Storage Systems
  - ◇ Economic and Energy Management
  - ◇ Energy Resources
  - ◇ Renewable Energy I
  - ◇ Computer Applied For Power System Analysis
  - ◇ Distributed Generation (DG)

## Language

<b>English</b>	Full professional proficiency IELTS Score (taken on July 16, 2016): Listening (8.5)    Reading (8.0)    Speaking (8.5)    Writing (8.5)
<b>Persian (Farsi)</b>	Native

## Personal Interests

<b>Sports</b>	Football (Soccer), Table Tennis
<b>Hobbies</b>	Reading (philosophy & physics), watching movies, and listening to music, front-end web application development

## References

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