

Salman Mohagheghi

Phone: (303) 273 3501

Email: smohaghe@mines.edu

Summary

16+ years of work experience in industry and academia, with expertise in power grid operation and security, energy efficiency, situational awareness, communication networks for utility automation, and data analytics. To date, have secured \$1,700,000 in external funds, with \$500,000 of PI share. Work has resulted in 4 patents, 6 pending patent applications, and 90 papers in peer-reviewed journals and conference proceedings.

Sample Projects:

- Ongoing, NSF EPCN: Robust Asset-and-User-Aware Power Grid Dispatch during Extreme Temperatures
- Ongoing, Load shedding solution for the steel plant of Companhia Siderúrgica Nacional in Volta Redonda, Brazil
- 2016, A low-power thermoelectric generator for use in natural-disaster-affected areas
- 2015, Stochastic dispatch solution for a power distribution system subject to a progressing wildfire
- 2014, Risk-based optimal energy dispatch of a power grid with wind farms exposed to an imminent hurricane
- 2009, Demand response module for ABB's Network Management DMS software to enable residential load control
- 2008, Unbalanced voltage/var optimization module for ABB's Network Management DMS software

Education

Ph.D. Electrical Engineering	Georgia Institute of Technology, Atlanta, GA, USA, GPA: 3.92/4.0	2006
M.S. Power Electrical Engineering	Sharif University of Technology, Tehran, Iran, GPA: 18.26/20.0	2001
B.Sc. Power Electrical Engineering	University of Tehran, Tehran, Iran, GPA: 16.12/20.0	1998

Professional Experience

Colorado School of Mines , Golden, CO, USA Electrical Engineering Department		
• Associate Professor		since 04/2017
• Assistant Professor		2011–2017
ABB Corporate Research , Raleigh, NC, USA Senior R&D Engineer		2007–2010
Georgia Institute of Technology , Atlanta, GA, USA School of Electrical and Computer Engineering		
• Postdoctoral Fellow		2006–2007
• Co-Instructor		2006–2007
• Graduate Research and Teaching Assistant		2001–2006

Honors

- **2017 Faculty Research Award**, Electrical Engineering Department, Colorado School of Mines
- **2015 Teaching Award**, Electrical Engineering and Computer Science Department, Colorado School of Mines
- **Elevation to the grade IEEE Senior Member**, 2014
- **Best Reviewer Award**, 2008
Industrial Automation and Controls Committee, IEEE Industry Applications Society (IAS)
- **Top Student**, Class of 2001 Power Systems Group, M.S. Level
School of Electrical and Computer Eng., Sharif University of Technology, Tehran, Iran
- **Second Top Student**, Class of 1999 Power Systems Group, B.Sc. Level
Faculty of Engineering, University of Tehran, Tehran, Iran

Skills

- **Mathematics:** Machine Learning and Data Mining, Statistical Analysis and Forecasting, Reliability Analysis, Graph Theory, Mathematical Programming, Stochastic and Robust Optimization, Game Theory.
- **Programming Languages:** C/C++, FORTRAN
- **Optimization and Engineering Software:** AMPL, GAMS, PSCAD/EMTDC[®], MATLAB/Simulink[®]
- **Hardware-in-the-Loop Implementation Platforms:** RTDS[®], RT-Lab[®]

Services and Affiliations

Program Co-Chair

IEEE Swarm Intelligence Symposium (SIS), St. Louis, MO, USA, Sept. 2008

Publications Chair

IEEE Green Technologies Conference, Denver, CO, USA, Apr. 2013

iREP Symposium on Bulk Power System Dynamics and Control, Charleston, SC, USA, Aug. 2007

Editorial Board

Frontiers in Energy Systems and Policy

Senior Member

Institute of Electrical and Electronics Engineers (IEEE)

Site Director

Center for Research and Education in Wind (CREW), Colorado School of Mines (2016–present)

Member

- American National Standards Institute (ANSI), representative at IEC TC-57 WG-17 (2009–present)
- IEEE P61158™ Working Group: Standard for Industrial Hard Real-Time Communication
- IEEE P2660.1™ Working Group: Recommendation Practices on Industrial Agents

Patents

- [1] **S. Mohagheghi** and J.C. Tournier, “Dispatching Mobile Energy Resources to Respond to Electric Power Grid Conditions,” US Patent 9,600,790, March 21, 2017.
- [2] F. Yang and **S. Mohagheghi**, “Method and Apparatus for Managing Demand Response Resources in a Power Distribution Network,” US Patent 9,577,435, February 21, 2017.
- [3] **S. Mohagheghi** and J.C. Tournier, “Systems and Methods for Predicting Customer Compliance with Demand Response Requests,” U.S. Patent 9,171,256, October 27, 2015.
- [4] **S. Mohagheghi**, A. Oudalov, J. Stoupis and D. Ishchenko, “Method for Operating a Recloser,” European Patent EP 2,664,045 (B1), July 22, 2015.

Selected Publications

- [1] M. Choobineh and **S. Mohagheghi**, “Optimal Energy Management in an Industrial Plant using On-Site Generation and Demand Scheduling,” *IEEE Trans. Industry Applications*, vol. 52, no. 3, pp. 1945–1952, May/Jun. 2016.
- [2] **S. Mohagheghi**, “Reinforcement of Energy Delivery Network against Natural Disaster Events,” *International Journal of Disaster Risk Reduction*, vol. 10, pp. 315–326, Dec. 2014.
- [3] P. Javanbakht and **S. Mohagheghi**, “A Risk-Averse Security-Constrained Optimal Power Flow for a Power Grid Subject to Hurricanes,” *Electric Power Systems Research*, vol. 116, pp. 408–418, Nov. 2014.
- [4] **S. Mohagheghi** and N. Raji, “Managing Industrial Energy Intelligently,” *IEEE Industry Applications Magazine*, pp. 53–62, Mar/Apr. 2014.
- [5] **S. Mohagheghi**, “Integrity Assessment Scheme for Situational Awareness in Utility Automation Systems,” *IEEE Trans. Smart Grid*, vol. 5, no. 2, pp. 592–601, Mar. 2014.
- [6] J. Sexauer and **S. Mohagheghi**, “Voltage Quality Assessment in a Distribution System with Distributed Generation – A Probabilistic Load Flow Approach,” *IEEE Trans. Power Delivery*, vol. 28, no. 3, pp. 1652–1662, Jul. 2013.
- [7] **S. Mohagheghi**, R.G. Harley, T.G. Habetler and D. Divan, “A Static Neural Network for Input-Output Mapping of Power Electronics Circuits,” *IEEE Trans. Power Electronics*, vol. 24, no. 10, pp. 2363–2367, Oct. 2009.
- [8] **S. Mohagheghi**, G.K. Venayagamoorthy and R.G. Harley, “Fully Evolvable Optimal Neuro-Fuzzy Controller Using Adaptive Critic Designs,” *IEEE Trans. Fuzzy Systems*, vol. 16, no. 6, pp. 1450–1461, Dec. 2008.
- [9] Y. del Valle, **S. Mohagheghi**, J.C. Hernandez-Mejia, G.K. Venayagamoorthy, R.G. Harley, “Particle Swarm Optimization: Basic Concepts, Variants and Applications in Power System,” *IEEE Trans. Evolutionary Computation*, vol. 12, no. 2, pp. 171–195, Apr. 2008.
- [10] **S. Mohagheghi**, G.K. Venayagamoorthy and R.G. Harley, “Optimal Wide Area Controller and State Predictor for a Power System,” *IEEE Trans. Power Systems*, vol. 22, no. 2, pp. 693–705, May 2007.