

Peng Xiong

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EDUCATION

National University of Singapore, Singapore

- Doctor of Philosophy (Ph.D.) in Electrical Engineering Aug 2008 – Apr 2013
 - Adviser: Professor Panida Jirutitijaroen
 - Thesis: Unit Commitment under Uncertainty

Zhejiang University, Hangzhou, Zhejiang, China

- Bachelor of Electrical Engineering Sep 2004 – Jun 2008

EMPLOYMENT

Institute of Operations Research and Analytics, National University of Singapore, Singapore

- Postdoctoral Researcher Aug 2017 – Present

ECE Department, Texas A&M University, College Station, Texas, USA

- Postdoctoral Researcher Sep 2014 – Jun 2017

ECE Department, National University of Singapore, Singapore

- Postdoctoral Researcher Jun 2013 – Dec 2013
- Research Engineer Nov 2012 – May 2013

RESEARCH INTERESTS

- Optimization Theory and Methods
 - Distributionally robust optimization
 - Robust optimization
 - Stochastic programming and decomposition algorithms
- Power System Modeling
 - Power system operation
 - Planning of renewable energy generation
 - Power system reliability and cyber-security

RESEARCH

Texas A&M University, College Station, Texas, USA

EXPERIENCE

- XProg: A MATLAB Toolbox for Optimization under Uncertainty Jul 2016
 - Developed a MATLAB toolbox specialized in modeling and solving large-scale distributionally robust optimization problems
 - Link: xprog.weebly.com

National University of Singapore, 21 Lower Kent Ridge Rd, Singapore

- Computational Tools for Optimal Planning and Scheduling of Distributed Renewable Energy Sources (Singapore NRF Project) Oct 2008 – Jul 2011
 - Supervisors: Professor Dipti Srinivasan and Professor Panida Jirutitijaroen
 - Research areas: stochastic unit commitment with photovoltaic generation, multi-cut decomposition algorithm for stochastic programming models

TEACHING

EXPERIENCE

Texas A&M University, College Station, Texas, USA

- *Instructor* of ECEN 459 Power System Fault Analysis and Protection Jan 2016 – May 2016

National University of Singapore, 21 Lower Kent Ridge Rd, Singapore

- *Teaching Assistant* in EE5702R Advanced Power System Analysis Sep 2013 – Nov 2013

- Graduate Assistant in EE4501 Power System Management and Protection, and EE3505 Electrical Energy Systems Aug 2009 – Apr 2011

PUBLICATIONS JOURNALS

- [1] Z. Chen, M. Sim, P. Xiong, “Tractable Distributionally Robust Optimization with Data,” under review, *Operations Research*.
- [2] P. Xiong, and C. Singh, “Distributionally robust optimization for energy and reserve toward a low-carbon electricity market,” *Electric Power System Research*, vol. 149, pp. 137–145, 2017.
- [3] F. AL-Ismail, P. Xiong, and C. Singh, “Optimal Wind Farm Allocation in Multi-Area Power Systems using Distributionally Robust Optimization Approach,” forthcoming, *IEEE Transactions on Power Systems*, 2017.
- [4] P. Xiong, P. Jirutitijaroen, and C. Singh, “A distributionally robust optimization model for unit commitment considering uncertain wind power generation,” *IEEE Transactions on Power Systems*, vol. 32, no. 1, pp. 39–49, 2017.
- [5] P. Xiong and C. Singh, “Optimal planning of storage in power systems integrated with wind power generation,” *IEEE Transactions on Sustainable Energy*, vol. 7, no. 1, pp. 232–240, 2015.
- [6] P. Xiong and P. Jirutitijaroen, “Two-stage adjustable robust optimization for unit commitment under uncertainty,” *IET Generation, Transmission and Distribution*, vol. 8, no. 3, pp. 573–582, 2014.
- [7] P. Xiong and P. Jirutitijaroen, “A stochastic optimization formulation of unit commitment with reliability constraints,” *IEEE Transactions on Smart Grid*, Special issue on “Optimization Methods and Algorithms Applied to Smart Grid”, vol. 4, no. 4, pp. 2200–2208, 2013.
- [8] Y. Yang, P. Xiong, T. Chen, Y. Chen, and D. Gu, “Study on a regenerative brake for electric bicycle based on ultracapacitor,” *Application of Electronic Technique*, vol. 38, no. 3, pp. 73–76, 2009.

CONFERENCES

- [9] P. Xiong, and P. Jirutitijaroen, “A linear decision rule approach for robust unit commitment considering wind power generation,” in Proceedings of the 18th Power Systems Computation Conference, Wroclaw, Poland, Aug 2014.
- [10] P. Xiong, and P. Jirutitijaroen, “An adjustable robust optimization approach for unit commitment under outage contingencies,” in Proceedings of 2012 IEEE Power and Energy Society General Meeting, San Diego, California, Jul 2012.
- [11] P. Xiong, and P. Jirutitijaroen, “Stochastic Unit Commitment Using Multi-Cut Decomposition Algorithm with Partial Aggregation,” in Proceedings of 2011 IEEE Power and Energy Society General Meeting, Detroit, Michigan. Jul 2011.
- [12] P. Xiong, and P. Jirutitijaroen, “Convergence acceleration techniques for the stochastic unit commitment problem,” in Proceedings of 2010 International Conference on Probabilistic Methods Applied to Power Systems, Singapore. Jun 2010.
- [13] P. Xiong, and P. Jirutitijaroen, “A probabilistic unit commitment problem with photovoltaic generation system,” in Proceedings of TENCON 2009, Singapore. Jan 2009.

**INVITED
LECTURES**

- Robust Optimization for Unit Commitment with Uncertain Renewable Energy Sources Nov 2013
- The First AIMMS Asia Pacific Optimization Event, Hangzhou, China
- Unit Commitment under Uncertainty–A Robust Optimization Approach Jul 2013
- Seminar Invited by AIMMS and NARI Technology, Development Co., Ltd, Nanjing, China
- Probabilistic Unit Commitment Formulation with Photovoltaic Systems Sep 2009
- The 2009 ASEAN Symposium of Power and Energy Systems, Hua Hin, Thailand

SKILLS

- **Programming:** MATLAB, C/C++, Python, R.
- **Optimization Software:** CPLEX, Gurobi, XPress, MOSEK.
- **Word Processing:** Microsoft office, L^AT_EX.
- **Others:** PowerWorld, LabVIEW, LabWindows, AutoCAD.

**PROFESSIONAL
EXPERIENCE**

- Reviewer of *IEEE Transactions on Power Systems*
- Reviewer of *IEEE Transactions on Sustainable Energy*
- Reviewer of *IEEE PES PowerTech 2017*