

Meng Wu

Assistant Professor
School of Electrical, Computer and Energy Engineering
Arizona State University

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RESEARCH INTERESTS

- Estimation and data analytics for power system planning and operations.
- Modeling and stability assessment for renewable energy integration.
- Operations and economics for smart grids.
- Optimization methods for electricity markets.

EDUCATION

Texas A&M University, College Station, TX 2013 - 2017
Doctor of Philosophy, Electrical and Computer Engineering
• **Advisor:** Professor Le Xie
• **Dissertation:** Physics-Based and Data-Driven Analytics for Enhanced Planning and Operations in Power Systems with Deep Renewable Penetration.

Cornell University, Ithaca, NY 2010 - 2011
Master of Engineering, Electrical and Computer Engineering

Tianjin University, Tianjin, P.R. China 2006 - 2010
Bachelor of Engineering, Electrical Engineering and Automation

The University of Hong Kong, Hong Kong, P.R. China 2008 - 2009
Undergraduate Exchange Study, Electrical and Electronic Engineering

PROFESSIONAL EXPERIENCE

Arizona State University, Tempe, AZ
School of Electrical, Computer, and Energy Engineering
Assistant Professor Jan. 2018 - present

ISO New England, Holyoke, MA
Business Architecture & Technology Department
Research Intern May. 2016 - Aug. 2016
• Automation and Verification of Synchrophasor-based Generator Model Validation.

Texas A&M University, College Station, TX
Department of Electrical and Computer Engineering
Graduate Research Assistant Aug. 2013 - Dec. 2017
• Power Flow Solution Boundary in High-Dimensional Space.
• Data-Driven Bad Data Detection for Synchrophasors.
• Analysis of Wind Farm Sub-synchronous Oscillations.
• Direct Initialization for DFIG-based Wind Turbines.

Beijing Sifang Automation Co. Ltd., Beijing, P.R. China
Research and Development Center
Research Engineer May. 2012 - Jun. 2013
• Enhanced Power System State Estimation.
• Power System Static Contingency Analysis.
• PMU-Based Online Generator Inertia Estimation.
• Modeling of Generation Excitation Systems.
• Generator Parameter Estimation Using PMU Data.

China Electric Power Research Institute, Beijing, P.R. China
Power System Department
Research Engineer

Jul. 2011 - May. 2012

- Power System Corrective Voltage Control.
- Power System Static Stability Analysis.

TEACHING EXPERIENCE

Arizona State University, Tempe, AZ

- EEE-471 Power System Analysis Spring 2018

Texas A&M University, College Station, TX

- ECEN-689 Data Science in Power Systems (served as *Graduate Teaching Fellow*) Fall 2015
- ECEN-614 Power System State Estimation (served as *Graduate Teaching Assistant*) Fall 2014

MENTORING EXPERIENCE

Texas A&M University, College Station, TX

- *Graduate Advisor*, ECEN-403 Senior Design Team Project 2015 - 2016

China Electric Power Research Institute, Beijing, China

- *Industry Advisor*, Master Thesis of Beijing Jiaotong University 2011 - 2012

JOURNAL PUBLICATIONS

- **Accepted**

- [6] Tong Huang, **Meng Wu**, and Le Xie. Prioritization of PMU Location and Signal Selection for Monitoring Critical Power System Oscillations. *IEEE Transactions on Power Systems*. Accepted, to appear.

- **2018-present**

- [5] **Meng Wu**, and Le Xie. Calculating Steady-State Operating Conditions for DFIG-Based Wind Turbines. *IEEE Transactions on Sustainable Energy*. vol. 9, no. 1, pp. 293-301, Jan. 2018.

- **2014-2017**

- [4] **Meng Wu**, and Le Xie. Online Detection of Low-Quality Synchrophasor Measurements: A Data-Driven Approach. *IEEE Transactions on Power Systems*. vol. 32, no. 4, pp. 2817-2827, Jul. 2017.
- [3] **Meng Wu**, Le Xie, Lin Cheng, and Rongfu Sun. A Study on the Impact of Wind Farm Spatial Distribution on Power System Sub-synchronous Oscillations. *IEEE Transactions on Power Systems*. vol. 31, no. 3, pp. 2154-2162, May 2016.

- **2012-2013**

- [2] Shiyang Ma, Daowei Liu, **Meng Wu**, Hongfu Wang, Yifeng Dong, Yi Wang, and Zhiqiang Zhang. An Online Quantitative Evaluation Method of Power System Transient Stability Situation Based on WAMS and Generator Pair. *Power System Technology*. vol. 37(5), pp. 1323-1328, May 2013 (in Chinese).
- [1] Daowei Liu, Xueshan Han, Ming Yang, **Meng Wu**, Hongfu Wang, and Yifeng Dong. Applied Criterion of Power System Static Stability Based on Comprehensive Parameters Sensitivity Technique. *Proceedings of the Chinese Society for Electrical Engineering*, vol. 32(7), pp. 91-100, Mar. 2012 (in Chinese).

CONFERENCE PROCEEDINGS

• 2014-2017

- [4] **Meng Wu**, Weihong Huang, “Frankie” Qiang Zhang, Xiaochuan Luo, Slava Maslennikov, and Eugene Litvinov. Power Plant Model Verification at ISO New England. *2017 IEEE Power and Energy Society General Meeting*, Chicago, IL. Jul. 2017.
- [3] **Meng Wu**, and Le Xie. Online Detection of False Data Injection Attacks to Synchrophasor Measurements: A Data-Driven Approach. *2017 50th Hawaii International Conference on System Sciences (HICSS)*. Jan. 2017.
- [2] **Meng Wu**, and Le Xie. Online Identification of Bad Synchrophasor Measurements via Spatio-Temporal Correlations. *2016 Power Systems Computation Conference (PSCC)*. Genoa, Italy. Jun. 2016.
- [1] **Meng Wu**, Rongfu Sun, Lin Cheng, and Le Xie. Parameter Sensitivity Analysis for Sub-Synchronous Control Interactions in Wind-Integrated Power Systems. *CIGRE Grid of the Future Symposium*. Houston, TX. Oct. 2014.

PRESENTATIONS & INVITED TALKS

• 2014-2017

- **Meng Wu**, and Le Xie. Real-time Data-driven Detection of Low-Quality Synchrophasor Measurements. *2017 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Houston, TX. Oct. 2017.
- **Meng Wu**, and Le Xie. A Feature-Based Diagnosis Framework for Power Plant Model Validation. *2017 Power Systems Engineering Research Center (PSERC) Summer Workshop*, Burlington, VT. Aug. 2017.
- **Meng Wu**. Integrating Physics-Based and Data-Driven Analytics into Power Systems with Deep Renewable Penetration. *Faculty Candidate Seminar at Arizona State University*, Tempe, AZ. Apr. 2017.
- **Meng Wu**, Yang Chen, Le Xie, and P.R. Kumar. PMU Streaming Data Dimensionality Reduction and Anomaly Detection. *2016 Workshop on Architecture and Economics of the Future Grid*, College Station, TX. Nov. 2016.
- **Meng Wu**, Online Bad Data Detection for Synchrophasor Measurements: A Data-driven Approach. *Guest Lecture for ECEN-614 (Fall 2016): Power System State Estimation*, Department of Electrical & Computer Engineering, Texas A&M University, College Station, TX. Oct. 2016.
- **Meng Wu**, Hung-Ming Chow, Xinbo Geng, Sadeqh Modarresi, Benjamin Wiseman, and Po-Chen Chen. Discussion Panel: Internship Experiences. *Electric Power and Power Electronics Institute (EPPEI) Weekly Seminar Series - Fall 2016*, Department of Electrical & Computer Engineering, Texas A&M University, College Station, TX. Oct. 2016.
- **Meng Wu**, and Le Xie. Online Identification of Bad Synchrophasor Measurements via Spatio-Temporal Correlations. *2016 Power Systems Computation Conference (PSCC)*, Genoa, Italy. Jun. 2016.
- **Meng Wu**, and Le Xie. Online Bad Data Detection for Synchrophasor Systems via Spatio-temporal Correlations. *2016 International Synchrophasor Symposium*, Atlanta, GA. Mar. 2016.
- **Meng Wu**, Rongfu Sun, Lin Cheng, and Le Xie. Parameter Sensitivity Analysis for Sub-Synchronous Control Interactions in Wind-Integrated Power Systems. *CIGRE Grid of the Future Symposium*. Houston, TX. Oct. 2014.

PROFESSIONAL SERVICES

- **Reviewing Services**

- *Reviewer*, IEEE Journal of Selected Topics in Signal Processing, 2017-present.
- *Reviewer*, 19th International Conference on Intelligent Systems Applications to Power (ISAP), 2017.
- *Reviewer*, IEEE Transactions on Power Systems, 2017-present.
- *Reviewer*, IEEE Transactions on Smart Grid, 2015-present.
- *Reviewer*, IEEE Transactions on Energy Conversion, 2015-present.
- *Reviewer*, 2016 IEEE Power & Energy Society (PES) General Meeting, 2015.

- **Power and Energy Society**

- *Vice Chair*, IEEE Power & Energy Society (PES) Analytic Methods for Power Systems (AMPS) Committee Awards Work Group, Oct. 2017-present.
- *Secretary*, IEEE Power & Energy Society (PES) Analytic Methods for Power Systems (AMPS) Committee Awards Work Group, Aug. 2017-Oct. 2017.
- *Receptionist*, 2017 North America Chinese Power Professional Association (NACPPA) Annual Meeting, Chicago, IL, Jul. 2017.
- *Receptionist*, 2016 Workshop on Architecture and Economics of the Future Grid, College Station, TX, Nov. 2016.

- **Texas A&M University**

- *Group Secretary*, Research Group of Professor Le Xie, Department of Electrical & Computer Engineering, Texas A&M University, 2014-2016.

- **Other Services**

- *Student Ambassador*, China Affairs Office, The University of Hong Kong, 2008-2009.
- *Vice President*, Student Science and Technology Association, Tianjin University, 2007-2008.

AWARDS, HONORS & CERTIFICATES

- **2013-2017**

- *Best Project Poster Award*, Power System Engineering Research Center (PSERC) Industry Advisory Board (IAB) meeting, 2015.
- *Ebensberger Fellowship*, Department of Electrical and Computer Engineering, Texas A&M University, 2015.
- *Graduate Teaching Fellow*, College of Engineering, Texas A&M University, 2015.
- *Outstanding PhD Student Award*, Department of Electrical and Computer Engineering, Texas A&M University, 2015.
- *Certificate of Training for OPAL-RT Real-Time Simulation System*, Opal-RT Technologies, 2015.
- *One-Time Graduate Merit Scholarship*, Department of Electrical and Computer Engineering, Texas A&M University, 2013.

- **2007-2012**

- *Best Undergraduate Thesis Award*, Tianjin University, 2010.
- *Outstanding Student Scholarship*, Tianjin University, 2008.
- *Silver Prize of Student Business Plan Competition*, Tianjin University, 2008.
- *China National Scholarship*, China Ministry of Education, 2007.