

# Ye Guo, Ph.D.

## PERSONAL INFORMATION

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Position            Postdoctoral Associate  
                      *School of Electrical and Computer Engineering*  
                      *Cornell University*

Address            136 Hoy Road  
                      Frank H.T. Rhodes Hall, Room 378  
                      Ithaca, NY, USA, 14853

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Website            <https://sites.google.com/site/yeguo2008/>

## EDUCATION

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**Ph.D., Electrical Engineering** 2008-2013  
*Tsinghua University, Beijing, China*  
Dissertation: Research on the Robust Model and Efficient Solutions of Power System State Estimation  
Excellent Graduate Student Award

**B.E., Electrical Engineering** 2004-2008  
*Tsinghua University, Beijing, China*  
Thesis: Real-time Modeling of External Networks in Electric Power Systems  
Undergraduate Honors Thesis

## PROFESSIONAL EXPERIENCE

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**Postdoctoral Associate** 2014-Present  
*Cornell University, Ithaca, NY*  
School of Electrical and Computer Engineering

**Postdoctoral Associate** 2013-2014  
*Tsinghua University, Beijing, China*  
Department of Electrical Engineering

## RESEARCH AND TEACHING INTERESTS

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- Power system economics, electricity market
- Power system state estimation, energy management systems
- Coordinated optimization for multi-area power systems
- Smart grid, Microgrid, and distributed generations
- Integration of renewable generations
- Multi-energy systems
- Distributed and parallel computation in large scale systems

## RESEARCH EXPERIENCE

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### Postdoctoral Research at Cornell University

2014-Present

Advisor: Prof. Lang Tong

- Devise a multi-area state estimation approach with a theoretical commitment on the rate of convergence
- Design a multi-area economic dispatch algorithm with finite-step convergence
- Construct a robust approach for the look ahead tie-line scheduling with renewable generation uncertainties
- Develop a general model of interface bids and the clearing mechanism
- Prove that the optimal setting of interregional power transactions is beneficial to individual utilities

### Postgraduate Research at Tsinghua University

2008-2014

Advisors: Profs. Boming Zhang (chair), Wenchuan Wu, and Hongbin Sun

- Formulated a robust power system state estimator based on maximum correntropy criterion
- Designed a state estimation algorithm with rigorous zero injection constraints
- Developed a solution method for the network parameter error identification problem
- Applied the research findings to the real energy management system in Chinese Southern Grid
- As the team leader, implemented our power system security analysis software in four Chinese dispatch centers

### Undergraduate Research at Tsinghua University

2006-2008

Advisor: Prof. Boming Zhang

- Developed a global power flow calculation algorithm for transmission and loop-structured distribution networks
- Designed a bus-type extended power flow model and established its solvability criterion
- Adopted multiple approaches to match internal and external power flow models
- Participated in a project on power flow forecast at the dispatch center of Henan province

## PUBLICATIONS

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### JOURNAL PAPERS

- [J1] **Ye Guo**, S. Bose, and L. Tong, "Coordinated robust economic dispatch for multi-area power systems," *IEEE Trans. on Power Systems*, submitted, April 2017, available at <https://arxiv.org/pdf/1704.07025.pdf>.
- [J2] **Ye Guo**, Y. Ji, and L. Tong, "Coordinated multiarea economic dispatch with interface bids," *IEEE Trans. on Power Systems*, submitted, February 2017, available at <https://arxiv.org/pdf/1702.01474.pdf>.
- [J3] **Ye Guo**, L. Tong, W. Wu, B. Zhang, and H. Sun, "Coordinated multi-area economic dispatch via critical region projection," *IEEE Trans. on Power Systems*, pre-printed, January, 2017.
- [J4] **Ye Guo**, L. Tong, W. Wu, B. Zhang, and H. Sun, "Hierarchical multi-area state estimation via sensitivity function exchanges," *IEEE Trans. on Power Systems*, vol. 32, no. 1, pp. 442–453, January 2017.
- [J5] **Ye Guo**, W. Wu, B. Zhang, and H. Sun, "A distributed state estimation method for power systems incorporating linear and nonlinear models," *International Journal of Electric Power & Energy Systems*, vol. 64, pp. 608–616, January 2015.
- [J6] **Ye Guo**, W. Wu, B. Zhang, and H. Sun, "A method for evaluating the accuracy of power system state estimation results based on correntropy," *International Journal of Electric Power & Energy Systems*, vol. 60, pp. 45–52, September 2014.
- [J7] **Ye Guo**, W. Wu, B. Zhang, and H. Sun, "A fast solution for the lagrange multiplier-based electric power network parameter error identification model," *Energies*, vol. 7, no. 3, pp. 1288–1299, March 2014.

- [J8] **Ye Guo**, B. Zhang, W. Wu, Q. Guo, and H. Sun, “Solvability and solutions for bus-type extended load flow,” *International Journal of Electric Power & Energy Systems*, vol. 51, pp. 89–97, October 2013.
- [J9] **Ye Guo**, W. Wu, B. Zhang, and H. Sun, “An efficient state estimation algorithm considering zero injection constraints,” *IEEE Trans. on Power Systems*, vol. 28, no. 3, pp. 2651–2659, January 2013.
- [J10] W. Wu, **Ye Guo**, B. Zhang, A. Bose, and H. Sun, “Robust state estimation method based on maximum exponential square,” *IET Generation, Transmission & Distribution*, vol. 5, no. 11, pp. 1165–1172, November 2011.
- [J11] H. Sun, Q. Guo, B. Zhang, **Ye Guo**, Z. Li, and J. Wang, “Master-slave-splitting based distributed global power flow method for integrated transmission and distribution analysis,” *IEEE Trans. on Smart Grid*, vol. 6, no. 3, pp. 1484–1492, May 2015.
- [J12] W. Zheng, W. Wu, A. Gomez-Exposito, B. Zhang, and **Ye Guo**, “Distributed robust bilinear state estimation for power systems with nonlinear measurements,” *IEEE Trans. on Power Systems*, vol. 32, no. 1, pp. 499–509, January 2017.

## CONFERENCE PAPERS

- [C1] **Ye Guo** and L. Tong, “Robust tie-line scheduling for multi-area power systems with finite-step convergence,” in *IEEE PES General Meeting*, Chicago, IL, July 2017.
- [C2] **Ye Guo**, Y. Ji, and L. Tong, “Incorporating interface bids in the economic dispatch for multi-area power systems,” in *IEEE PES General Meeting*, Chicago, IL, July 2017.
- [C3] **Ye Guo**, L. Tong, W. Wu, B. Zhang, and H. Sun, “Multi-area economic dispatch via state space decomposition,” in *American Control Conference (ACC)*, Boston, USA, July 2016.
- [C4] **Ye Guo**, B. Zhang, W. Wu, and H. Sun, “Multi-time interval power system state estimation incorporating phasor measurements,” in *IEEE PES General Meeting*, Denver, USA, July 2015.
- [C5] **Ye Guo**, L. Tong, W. Wu, B. Zhang, and H. Sun, “Coordinated multi-area economic dispatch via multi-parametric programming,” in *IEEE PES General Meeting*, Denver, USA, July 2015.
- [C6] **Ye Guo**, W. Wu, Z. Wang, B. Zhang, and H. Sun, “A distributed power system state estimator incorporating linear and nonlinear areas,” in *IEEE PES General Meeting*, Washington D.C., USA, July 2014.
- [C7] **Ye Guo**, B. Zhang, W. Wu, and H. Sun, “Accuracy evaluation indexes for power system state estimation results,” in *IEEE PES General Meeting*, Vancouver, Canada, July 2013.

## INVITED BOOK CHAPTER

- [B1] **Ye Guo**, L. Tong, W. Wu, B. Zhang, and H. Sun, “Hierarchical multi-area power system state estimation,” *Advances in Electric Power and Energy Systems*, Edited by Mohamed E. El-Hawary, Wiley-IEEE Press, 2017.

## TEACHING EXPERIENCE

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**Teaching Assistant**  
 Cornell University  
 Statistical Signal Processing

Spring 2017

**GET SET Teaching Training Program**  
*Cornell Center for Teaching Excellence*  
In the Category of Advanced Pedagogies

Fall 2016

**Teaching Assistant**  
*Tsinghua University*  
Advanced Topics in Power and Energy Networks

Spring 2012

## **CO-MENTORING EXPERIENCE**

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**Kursat Mestav**  
*Cornell University*  
Ph.D. Candidate

2016-Present

**Jinni Dong**  
*Tsinghua University*  
Ph.D. Candidate

2014-Present

**Weiye Zheng**  
*Tsinghua University*  
Ph.D. Candidate

2013-Present

## **GRANTS AND SELECTED AWARDS**

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**Chinese Postdoc Research Foundation (2014M550727)**  
*Chinese Postdoc Association*  
50,000 CNY  $\approx$  7,260 USD

2014

**December 9th Anniversary Scholarship (Top Rank)**  
*Tsinghua University*  
20,000 CNY  $\approx$  2,900 USD  
85 Recipients of Top-rank Scholarships University-wide

2011

**Excellent Ph.D students**  
*Chinese Ministry of Education*  
30,000 CNY  $\approx$  4,350 USD  
690 Recipients Nationwide

2011

## **JOURNALS REFEREED**

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- IEEE Transactions on Power Systems
- IEEE Transactions on Smart Grid
- IEEE Power Engineering Letters
- IET Generation, Transmission, & Distribution
- International Journal of Power & Energy Systems
- European Transactions on Electrical Power

## REFERENCES

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**Lang Tong, Irwin and Joan Jacobs Professor of Engineering**

Postdoctoral Advisor

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*Cornell University*

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**Boming Zhang, Professor**

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