XINBO GENG

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Texas A&M University-Dwight Look College of Engineering,
Department of Electrical and Computer Engineering,   (979) 587-5088
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RESEARCH INTERESTS

Optimization, learning, and decision making in power systems, optimal power flow.

EDUCATION

Texas A&M University, Ph.D. in Electrical and Computer Engineering,   2015-present.
    Advisor: Dr. Le Xie.
    Dissertation Committee: Dr. Chanan Singh, Dr. P.R. Kumar, Dr. Steve Puller.
Texas A&M University, M.Sc. in Electrical and Computer Engineering,   2013-2015.
Tsinghua University, B.Eng. in Electrical Engineering,   2009-2013.

PROFESSIONAL EXPERIENCES

Visiting Student at the MIT Laboratory for Information & Decision Systems (LIDS),
    Massachusetts Institute of Technology, Cambridge, MA   09/2018-12/2018.
Visiting Student at the Simons Institute for the Theory of Computing (attending the Real-Time
    Decision-Making Program), University of California, Berkeley, CA   01/2018-05/2018.
Data Analyst (Student Summer Intern) at the Business and Architecture Technology Group,
    Independent System Operator-New England (ISO-NE), Holyoke, MA   06/2017-08/2017.
Power System Design and Studies Intern at the National Renewable Energy Laboratory (NREL),
    Golden, CO   06/2016-08/2016.

HONORS

The ISSIP-IBM-CBA Student Paper Award for the "Best Industry Studies Paper" at the 2019
    Hawaii International Conference on System Sciences (HICSS-52), Maui, HI   01/2019.
Graduate Teaching Fellowship, Dwight Look College of Engineering, Texas A&M University,
    College Station, TX   11/2018.
The Best Master Student of the Dwight Look College of Engineering, Texas A&M University,
    College Station, TX   10/2015.
The Best Master Student of the Department of Electrical and Computer Engineering, Texas
    A&M University, College Station, TX   08/2015.
Finalist in the 2017 Power and Energy Society General Meeting (PESGM) Graduate Student
    Poster Contest, Chicago, IL   07/2017.
IMA Travel Grant of the Workshop on Control at Large Scales: Energy Markets and Responsive
    Grids, University of Minnesota Twin Cities, Minneapolis, MN   05/2016.
The Best App Award for the EnergyCoupon project, Smart Grid Student Symposium, Texas
    A&M University, College Station, TX   04/2016.

Department Scholarship of the Department of Electrical and Computer Engineering, Texas
A&M University, College Station, TX   09/2014.

SKILLS

Programming: Matlab, Python, Shell/bash, R, Java, C/C++.
High Performance Computing (2000+ hours on the clusters of TAMU and NREL).
Software: Matlab/Simulink, Vim, Powerworld, PLEXOS, GridLab-D.
Optimization: Gurobi, CPLEX, Mosek, YALMIP, CVX.

PUBLICATIONS

For a full list of publications, with links to PDF files, please visit my google scholar page *or* xb00dx.github.io/publications/.

Journal Publications

[J5] **Geng, Xinbo**, and Le Xie. "Data-driven Decision Making in Power Systems with Probabilistic Guarantees: Theory and Applications of Chance-constrained Optimization." *Annual Reviews in Control* (2019).

[J4] Halder, Abhishek, **Xinbo Geng**, Fernando ACC Fontes, P. R. Kumar, and Le Xie. "Optimal power consumption for demand response of thermostatically controlled loads." *Optimal Control Applications and Methods* 40, no. 1 (2019).

[J3] Li, Jian, Bainan Xia, **Xinbo Geng**, Hao Ming, Srinivas Shakkottai, Vijay Subramanian, and Le Xie. "Mean field games in nudge systems for societal networks." *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (TOMPECS)* 3, no. 4 (2018).

[J2] **Geng, Xinbo**, and Le Xie. "Learning the LMP-load Coupling from Data: A Support Vector Machine Based Approach." *IEEE Transactions on Power Systems* 32, no. 2 (2017).

[J1] Halder, Abhishek, **Xinbo Geng**, P. R. Kumar, and Le Xie. "Architecture and algorithms for privacy preserving thermal inertial load management by a load serving entity." *IEEE Transactions on Power Systems* 32, no. 4 (2017).

Peer Reviewed Conference Publications

[C8] **Geng, Xinbo**, and Le Xie. "Chance-constrained Unit Commitment via the Scenario Approach" In *51st North American Power Symposium (NAPS)* (submitted).

[C7] **Geng, Xinbo**, Swati Gupta, and Le Xie. "Robust Look-ahead Three-phase Balancing of Uncertain Distribution Loads." In *Hawaii International Conference on System Sciences 2019 (HICSS-52)*, 2019.   (Best Industry Studies Paper).

[C6] **Geng, Xinbo**, Le Xie, and Diran Obadina. "Chance Constrained Optimal Reactive Power Dispatch." In *2018 IEEE Power & Energy Society General Meeting (PESGM)*, 2018.

[C5] Zhao, Jinye, Slava Maslennikov, Eugene Litvinov, and **Xinbo Geng**. "An Enhanced Transmission Operating Guide Creation Framework Using Machine Learning Techniques." In *2018 IEEE Power & Energy Society General Meeting (PESGM)*, 2018.

[C4] **Geng, Xinbo**, Le Xie, and Diran Obadina. "Voltage security constrained look-ahead coordination of reactive power support devices with high renewables." In *2017 19th*

International Conference on Intelligent System Application to Power Systems (ISAP), IEEE, 2017.

[C3] Halder, Abhishek, **Xinbo Geng**, Gaurav Sharma, Le Xie, and P. R. Kumar. "A control system framework for privacy preserving demand response of thermal inertial loads." In *2015 IEEE International Conference on Smart Grid Communications (SmartGridComm)*, pp. 181-186. IEEE, 2015.

[C2] **Geng, Xinbo**, and Le Xie. "A data-driven approach to identifying system pattern regions in market operations." In *2015 IEEE Power & Energy Society General Meeting*. IEEE, 2015.

[C1] Li, Jian, Bainan Xia, **Xinbo Geng**, Hao Ming, Srinivas Shakkottai, Vijay Subramanian, and Le Xie. "Energy coupon: A mean field game perspective on demand response in smart grids." ACM SIGMETRICS Performance Evaluation Review 43, no. 1 (2015): 455-456.

In Preparation

[P3] **Geng, Xinbo**, M. Sadegh Modarresi, and Le Xie. "Security-constrained Unit Commitment with Probabilistic Guarantees" *in preparation* (2019).

[P2] **Geng, Xinbo**, and Le Xie. "Data-driven Decision Making with Probabilistic Guarantees (Part 2): Applications of Chance-constrained Optimization in Power Systems." arXiv preprint arXiv:1904.06755 (2019).

[P1] **Geng, Xinbo**, and Le Xie. "Data-driven Decision Making with Probabilistic Guarantees (Part 1): A Schematic Overview of Chance-constrained Optimization." arXiv preprint arXiv:1903.10621 (2019).

TEACHING

Graduate Teaching Fellow for the undergraduate/graduate course: *ECEN 415/715 "Physical and Economics Operations of Power Systems"*, Texas A&M University   Spring 2019.

Teaching Assistant for the graduate course: *"ECEN 689: Data Sciences in Modern Power Systems"*, Texas A&M University   Fall 2015.

PROFESSIONAL SERVICES

Reviewer for: *IEEE Transactions on Power Systems, IEEE Transactions on Smart Grids, IEEE Control Systems Letters, 2018-2019 IEEE Conference on Decision and Control (CDC), 2018-2019 American Control Conference (ACC), 2015-2019 IEEE Power and Energy Society General Meeting (PESGM) and a few other power system journals and conferences.*

SOFTWARE

ConvertChanceConstraint (ccc): https://github.com/xb00dx/ConvertChanceConstraint-ccc.

SELECTED PRESENTATIONS

"Robust Look-ahead Three-phase Balancing of Uncertain Distribution Loads", *Hawaii International Conference on System Sciences 2019 (HICSS-52)*, Maui, HI   01/2019.

Real-time Decision-Making Reunion, University of California, Berkeley, CA   06/2018.

"Security-constrained Unit Commitment with Probabilistic Guarantees", *the LIDS/Stats tea talk*,
   Massachusetts Institute of Technology, Cambridge, MA   10/2018.
"A Critical Review of Chance-constrained Optimization and Applications to Power Systems",
   the Real-time Decision-Making Seminar, University of California, Berkeley, CA
                              04/2018.
"Learning the LMP-Load Coupling from Data", presented at
   the 2017 INFORMS Annual Meeting, Houston, TX   10/2017.
   the Workshop on Architecture and Economics of the Future Grid, Texas A&M
   University, College Station, TX   11/2016.
   the Course *ECEN 689: Data Science and Applications for Modern Power Systems*, Texas
   A&M University, College Station, TX   11/2015.
"Architecture and Algorithms for Privacy Preserving Thermal Inertial Load Management by a
   Load Serving Entity", *the 2017 IEEE PES General Meeting*, Chicago, IL   07/2017.
"EnergyCoupon: A Coupon-incentive Based Demand Response Experiment", *the Smart Grid
   Student Symposium*, Texas A&M University, College Station, TX   04/2016.
"A Data-driven Approach to Identifying System Pattern Regions in Market Operations", *the
   2015 IEEE PES General Meeting*, Denver, CO   07/2015.