

# Dr. Yu Zhang

Dept. of Electrical and Computer Engineering  
Jack Baskin School of Engineering  
The University of California, Santa Cruz

☎ (831)-459-2921  
✉ [zhangy@ucsc.edu](mailto:zhangy@ucsc.edu)  
🌐 [people.ucsc.edu/~yzhan419/](http://people.ucsc.edu/~yzhan419/)

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## RESEARCH INTEREST

- Smart grids and data centers: Energy management, grid monitoring and AI for energy
- Cyber-physical IoT systems: Optimal resource allocation
- Optimization and learning: Distributed, stochastic and online optimization
- Data analytics: High dimensional statistical inference and deep learning

## POSITION

Associate Professor Electrical and Computer Engineering University of California, Santa Cruz	07/2025 – Present
Assistant Professor Electrical and Computer Engineering University of California, Santa Cruz	07/2017 – 06/2025
Postdoctoral Employee Energy Analysis and Environmental Impacts Division Lawrence Berkeley National Laboratory	05/2017 – 06/2017
Postdoctoral Scholar Industrial Engineering & Operations Research Department University of California, Berkeley	01/2016 – 04/2017
Postdoctoral Associate Department of Electrical and Computer Engineering University of Minnesota	08/2015 – 01/2016

## EDUCATION

University of Minnesota – Twin Cities Ph.D. in Electrical Engineering	08/2010 – 07/2015
Shanghai Jiao Tong University M.S. in Electrical Engineering (Summa Cum Laude)	09/2007 – 03/2010
Wuhan University of Technology B.E. in Electrical Engineering (Summa Cum Laude)	09/2002 – 07/2006

## PUBLICATION

[Google scholar citations 2544](#), [h-index 19](#), [i10-index 29](#).

- [67] S. Chowdhury, Y. Chen, **Y. Zhang**, “Resilient Grid Hardening against Multiple Hazards: An Adaptive Two-Stage Stochastic Optimization Approach,” *Electric Power Systems Research*, Oct. 2025 (accepted).
- [66] S. Bose, K. Chen, **Y. Zhang**, “Presolving Convexified Optimal Power Flow with Mixtures of Gradient Experts,” *Energy and AI*, Vol. 22, Dec. 2025.

- [65] K. Chen, X. Zhang, **Y. Zhang**, B. Knueven, and W. Jones, "A Hybrid Reinforcement Learning and Optimization Framework for Critical Load Restoration," *Electric Power Systems Research*, Mar. 2025.
- [64] K. Chen, S. Bose, and **Y. Zhang**, "Physics-Informed Gradient Estimation for Accelerating Deep Learning based AC-OPF," *IEEE Trans. on Industrial Informatics*, vol. 21, no. 6, pp. 4649-4660, Jun. 2025.
- [63] B. Kong and **Y. Zhang**, "Wildfire Detection Using a Mixture of Experts Approach," *Journal of Student Research*, vol. 14, no. 1, pp. 1-10, Jan. 2025.
- [62] S. Bose, Y. Li, A. Van Sant, **Y. Zhang**, and K. Kim, "From RNNs to Foundation Models: An Empirical Study on Commercial Building Energy Consumption," *NeurIPS Workshop on Time Series in the Age of Large Models*, Vancouver, CAN, Dec. 2024.
- [61] S. Bose and **Y. Zhang**, "Load Restoration in Islanded Microgrids: Formulation and Solution Strategies," *IEEE Trans. on Control of Network Systems*, vol. 11, no. 3, pp. 1345-1357, Sep. 2024.
- [60] S. Bose, **Y. Zhang**, and K. Kim, "Privacy-Preserving Load Forecasting via Personalized Model Obfuscation," *2024 IEEE PES General Meeting*, Seattle, Washington, July 2024.
- [59] G. Intriago, A. Intriago, C. Konstantinou, and **Y. Zhang**, "A Novel Observer-Centric Approach for Detecting Faults in Islanded AC Microgrids with Uncertainties," *IEEE Systems Journal*, vol. 18, no. 2, pp. 1236-1247, June 2024.
- [58] S. Chowdhury and **Y. Zhang**, "Two-stage Stochastic Optimal Power Flow for Microgrids with Uncertain Wildfire Effects," *IEEE Access*, vol. 12, pp. 68857-68869, May 2024.
- [57] S. Bose, **Y. Zhang**, and K. Kim, "Addressing Heterogeneity in Federated Load Forecasting with Personalization Layers," *the Institute of Industrial and Systems Engineers (IISE) Annual Conference*, Montreal, Canada, May 2024.
- [56] G. Intriago and **Y. Zhang**, "Adaptive Fault Detection for Grid-Forming Inverters," *IEEE Access*, vol. 12, pp. 57004-57016, Apr. 2024.
- [55] Y. Shi, T. Yang, **Y. Zhang**, and R. Ma, "Greening Service Capacity in Telecom Supply Chain under Environmental Regulation," *Sustainability*, vol. 16, no. 7, pp. 1236-1247, Mar. 2024.
- [54] J. Xiong, T. Hong, D. Zhao, and **Y. Zhang**, "MATNilm: Multi-appliance-task Non-intrusive Load Monitoring with Limited Labeled Data," *IEEE Trans. on Industrial Informatics*, vol. 20, no. 3, pp. 3177-3187, Mar. 2024.
- [53] G. Intriago, H. Cevallos, and **Y. Zhang**, "Power System Quasi-Steady State Estimation: An Echo State Network Approach," *55th Annual North American Power Symposium*, Asheville, NC, Oct. 2023.
- [52] K. Chen and **Y. Zhang**, "Physics-guided Residual Learning for Probabilistic Power Flow Analysis," *IEEE Access*, vol. 11, pp. 90309-90321, Aug. 2023.
- [51] G. Intriago, R. Intriago, and **Y. Zhang**, "Frequency Cyber-Attack Detection in Droop-Controlled Grid Forming Inverters," *IEEE PES General Meeting*, Orlando, Florida, July 2023.
- [50] S. Bose, K. Chen, and **Y. Zhang**, "On LinDistFlow Model Congestion Pricing: Bounding the Changes in Power Tariffs," *Proc. of 32nd International Symposium on Industrial Electronics (ISIE)*, Helsinki-Espoo, Finland, June 2023.
- [49] J. Xiong and **Y. Zhang**, "A Unifying Framework of Attention-based Neural Load Forecasting," *IEEE Access*, vol. 11, pp. 51606-51616, May 2023.

- [48] G. Intriago and **Y. Zhang**, “Real-Time Power System Event Detection: A Novel Instance Selection Approach,” *IEEE Access*, vol. 11, pp. 46765-46781, Feb. 2023.
- [47] M. Chen, S. Bose, and **Y. Zhang**, “AI-Based Power Demand Forecasting of California Counties,” *International Journal of High School Research*, vol. 5, no. 1, Feb. 2023.
- [46] Y. Li, T. Yang, and **Y. Zhang**, “Evolutionary Game Theory-based System Dynamics Modeling for Community Solid Waste Classification in China,” *Utilities Policy*, vol. 79, Dec. 2022.
- [45] K. Chen, S. Bose, and **Y. Zhang**, “Unsupervised Deep Learning for AC Optimal Power Flow via Lagrangian Duality,” *IEEE Global Communications Conference*, Rio de Janeiro, Brazil, Dec. 2022.
- [44] S. Bose, S. Chowdhury, and **Y. Zhang**, “Co-optimization of Battery Routing and Load Restoration for Microgrids with Mobile Energy Storage Systems,” *IEEE PES General Meeting*, Denver, CO, USA, July 2022.
- [43] K. Chen and **Y. Zhang**, “Variation-cognizant Probabilistic Power Flow Analysis via Multi-task Learning,” *IEEE PES Innovative Smart Grid Technologies*, Washington D.C., Feb. 2022.
- [42] S. Bose and **Y. Zhang**, “Differentially Private Load Restoration for Microgrids with Distributed Energy Storage,” *IEEE PES Innovative Smart Grid Technologies*, Washington D.C., Feb. 2022.
- [41] S. Chowdhury, K. Zhu, and **Y. Zhang**, “Mitigating Greenhouse Gas Emissions Through Generative Adversarial Networks Based Wildfire Prediction,” *Applied Energy Symposium: MIT A+B*, Cambridge MA, Aug. 2021.
- [40] T. Yang, Y. Li, and **Y. Zhang**, “Exploring the Quantity Change Pattern of Environment-Friendly Products in the Sharing Economy,” *Discrete Dynamics in Nature and Society*, vol. 2021, Aug. 2021.
- [39] G. Intriago and **Y. Zhang**, “Online Dictionary Learning Based Fault and Cyber Attack Detection for Power Systems,” *IEEE PES General Meeting*, Washington D.C., Jul. 2021 (Best Paper Session on Bulk Power Generation and Transmission).
- [38] K. Chen, T. Vantuch, **Y. Zhang**, J. Hu, and J. He, “Fault Detection for Covered Conductors With High-Frequency Voltage Signals: From Local Patterns to Global Features,” *IEEE Trans. on Smart Grid*, vol. 12, no. 2, Mar. 2021.
- [37] J. Xiong, P. Zhou, A. Chen, **Y. Zhang**, “Attention-based Neural Load Forecasting: A Dynamic Feature Selection Approach,” *IEEE PES General Meeting*, Washington DC, Jul. 2021.
- [36] K. Chen, **Y. Zhang**, Q. Wang, J. Hu, H. Fan, and J. He, “Scale- and Context-Aware Convolutional Non-intrusive Load Monitoring,” *IEEE Trans. on Power Systems*, vol. 35, no. 3, pp. 2362-2373, May 2020.
- [35] **Y. Zhang** and S. Moura, “Stochastic Optimal Load Shedding with Heterogeneous Load Zones,” *Proc. of IEEE PES Innovative Smart Grid Technologies*, Washington DC, Feb. 2020.
- [34] K. Chen, J. Hu, **Y. Zhang**, Z. Yu, and J. He, “Fault Location in Power Distribution Systems via Deep Graph Convolutional Networks,” *IEEE J. on Selected Areas in Communications*, vol. 38, no. 1, pp. 119-131, Jan. 2020.
- [33] T. Yang, Y. Li, S. Zhou, and **Y. Zhang**, “Dynamic Feedback Analysis of Influencing Factors and Challenges of Dockless Bike-Sharing Sustainability in China,” *Sustainability*, vol. 11, no. 17, Aug. 2019.

- [32] **Y. Zhang**, R. Madani, and J. Lavaei, "Conic Relaxations for Power System State Estimation with Line Measurements," *IEEE Trans. on Control of Network Systems*, vol. 5, no. 3, pp. 1193-1205, Sep. 2018.
- [31] A. Maqsood, **Y. Zhang**, and K. Corzine "Optimal Rotational Load Shedding via Bilinear Integer Programming," *Proc. of Asia-Pacific Signal and Information Processing Assoc. Annual Summit and Conf. (APSIPA ASC)*, Honolulu, Hawaii, Nov. 2018.
- [30] Y. Ding, D. Feng, L. Zhang, Z. Quan, **Y. Zhang**, "Identification Method for Nodal Price Multiplicity in Electricity Markets," *Proc. of the Chinese Society for Electrical Engineering*, vol. 37, no. 3, pp. 760-767, Feb. 2017.
- [29] **Y. Zhang**, R. Madani, and J. Lavaei, "Power System State Estimation with Line Measurements," *Proc. of 55th IEEE Conf. on Decision and Control (CDC)*, Las Vegas, NV, Dec. 2016.
- [28] S. Hu, **Y. Zhang**, X. Wang, and G. Giannakis, "Weighted Sum-Rate Maximization for MIMO Downlink Systems Powered by Renewables," *IEEE Trans. on Wireless Communications*, vol. 15, no. 8, pp. 5615-5625, Aug. 2016.
- [27] X. Wang, **Y. Zhang**, G. Giannakis, and S. Hu, "Robust Smart-Grid Powered Cooperative Multipoint Systems," *IEEE Trans. on Wireless Communications*, vol. 14, no. 11, pp. 1348-1359, May 2016.
- [26] **Y. Zhang** and G. Giannakis, "Distributed Stochastic Market Clearing with High-Penetration Wind Power," *IEEE Trans. on Power Systems*, vol. 31, no. 2, pp. 895-906, Mar. 2016.
- [25] T. Chen, **Y. Zhang**, X. Wang, and G. Giannakis, "Robust Geographical Load Balancing for Sustainable Data Centers," *Proc. of Intl. Conf. on Acoustics, Speech, and Signal Process. (ICASSP)*, Shanghai, China, Mar. 2016.
- [24] T. Chen, **Y. Zhang**, X. Wang, and G. Giannakis, "Robust Workload and Energy Management for Sustainable Data Centers," *IEEE Journal on Selected Areas in Communications*, vol. 34, no. 3, pp. 651-664, Mar. 2016.
- [23] X. Wang, T. Chen, **Y. Zhang**, and G. Giannakis, "Optimal Dynamic Power Management for Green Coordinated Multipoint Systems," *Proc. of IEEE Global Commun. Conf. (Globecom)*, San Diego, CA, Dec. 2015.
- [22] S. Chepuri, **Y. Zhang**, G. Leus, and G. Giannakis, "Big Data Sketching with Model Mismatch," *Proc. of Asilomar Conf. on Signals, Systems, and Computers (Asilomar)*, Pacific Grove, CA, Nov. 2015.
- [21] X. Wang, **Y. Zhang**, T. Chen, and G. Giannakis, "Dynamic Energy Management for Smart-Grid Powered Coordinated Multipoint Systems," *IEEE Journal on Selected Areas in Communications*, vol. 34, no. 5, pp. 6188-6199, Nov. 2015.
- [20] S. Hu, X. Wang, **Y. Zhang**, G. Giannakis, "Optimal Resource Allocation for Smart-Grid Powered MIMO Broadcast Channels," *Proc. of 7th Intl Conf. on Wireless Commun. and Signal Process. (WCSP)*, Nanjing, China, Oct. 2015.
- [19] **Y. Zhang**, X. Wang, G. Giannakis, and S. Hu, "Distributed Robust Resource Allocation for Renewable Powered Wireless Cellular Networks," *Proc. of 3rd Intl. BlackSea Conf. on Commun. and Netw. (BlackSeaCom)*, Constanta, Romania, May 2015.
- [18] **Y. Zhang**, S.-J. Kim, and G. Giannakis, "Short-Term Wind Power Forecasting using Nonnegative Sparse Coding," *Proc. of 49th Conf. on Info. Sci. and Syst. (CISS)*, Baltimore, MD, Mar. 2015.

- [17] V. Kekatos, **Y. Zhang**, and G. Giannakis, "Electricity Market Forecasting via Low-Rank Multi-Kernel Learning," *IEEE Journal of Selected Topics in Signal Processing*, vol. 8, no. 6, pp. 1182–1193, Dec. 2014.
- [16] **Y. Zhang** and G. Giannakis, "Distributed Market Clearing with Wind Generation and Large-Scale Dispatchable Loads," *Proc. of 53rd IEEE Conf. on Decision and Control (CDC)*, Los Angeles, CA, Dec. 2014.
- [15] G. Martinez, **Y. Zhang**, and G. Giannakis, "An Efficient Primal-Dual Approach to Chance-Constrained Economic Dispatch," *Proc. of North American Power Symp. (NAPS)*, Pullman, WA, Sep. 2014.
- [14] V. Kekatos, **Y. Zhang**, and G. Giannakis, "Kernel Selection for Power Market Inference via Block Successive Upper Bound Minimization," *Proc. of Intl. Conf. on Acoustics, Speech, and Signal Process. (ICASSP)*, Florence, Italy, May 2014.
- [13] **Y. Zhang** and G. Giannakis, "Efficient Decentralized Economic Dispatch for Microgrids with Wind Power Integration," *Proc. of 6th Annual IEEE Green Tech. (GreenTech)*, Corpus Christi, TX, Apr. 2014.
- [12] **Y. Zhang**, N. Gatsis, and G. Giannakis, "Disaggregated Bundle Methods for Distributed Market Clearing in Power Networks," *Proc. of 1st Global Conf. on Signal and Info. Processing (GlobalSIP)*, Austin, TX, Dec. 2013 (invited).
- [11] V. Kekatos, **Y. Zhang**, and G. Giannakis, "Low-Rank Kernel Learning for Electricity Market Inference," *Proc. of Asilomar Conf. on Signals, Systems, and Computers (Asilomar)*, Pacific Grove, CA, Nov. 2013.
- [10] **Y. Zhang**, N. Gatsis, and G. Giannakis, "Robust Energy Management for Microgrids With High-Penetration Renewables," *IEEE Trans. on Sustainable Energy*, vol. 4, no. 4, pp. 944–953, Oct. 2013 ([4th most accessed article in TSTE, 01/2019](#)).
- [9] **Y. Zhang** and G. Giannakis, "Robust Optimal Power Flow with Wind Integration using Conditional Value-at-Risk," *Proc. of 4th Intl. Conf. on Smart Grid Commun. (SGComm)*, Vancouver, Canada, Oct. 2013.
- [8] **Y. Zhang**, N. Gatsis, V. Kekatos, and G. Giannakis, "Risk-aware Management of Distributed Energy Resources," *Proc. of 18th Intl. Conf. on Digital Signal Process. (DSP)*, Santorini Island, Greece, Jul. 2013 (invited).
- [7] **Y. Zhang**, N. Gatsis, and G. Giannakis, "Risk-Constrained Energy Management with Multiple Wind Farms," *Proc. of 4th IEEE PES on Innovative Smart Grid Technologies*, Washington, D.C., Feb. 2013.
- [6] **Y. Zhang**, E. Dall'Anese, and G. Giannakis, "Distributed Optimal Beamformers for Cognitive Radios Robust to Channel Uncertainties," *IEEE Trans. on Signal Processing*, vol. 60, no. 12, pp. 6495–6508, Dec. 2012.
- [5] **Y. Zhang**, N. Gatsis, and G. Giannakis, "Robust Distributed Energy Management for Microgrids with Renewables," *Proc. of 3rd Intl. Conf. on Smart Grid Commun. (SGComm)*, Tainan, Taiwan, Nov. 2012.
- [4] **Y. Zhang**, E. Dall'Anese, and G. Giannakis, "Distributed Robust Beamforming for MIMO Cognitive Networks," *Proc. of Intl. Conf. on Acoustics, Speech, and Signal Process. (ICASSP)*, Kyoto, Japan, Mar. 2012.
- [3] **Y. Zhang**, H.-W. Luo, and X.-L. Zhou, "A Relay Scheduling Algorithm in Dual-Hop Wireless Networks," *Journal of Shanghai Jiao Tong University*, vol. 45, no. 3, pp. 331–335, Mar. 2011 (in Chinese).
- [2] **Y. Zhang**, H.-W. Luo, and W. Chen, "Efficient Relay Beamforming Design with SIC Detection for Dual-Hop MIMO Relay Networks," *IEEE Trans. on Vehicle Technology*, vol. 59, no. 8, pp. 4192–4197, Oct. 2010.

- [1] **Y. Zhang**, H.-W. Luo, C. Wang, and F. She, “A Utility Function Based Low Complexity User Scheduling Algorithm for Multi-user MIMO Systems,” *Journal of Shanghai Jiao Tong University*, vol. 43, no. 7, pp. 1103–1107, Jul. 2009 (in Chinese).

### Technical Report

- [R3] S. Bose, **Y. Zhang**, “Load Restoration in Islanded Microgrids: Formulation and Solution Strategies,” Nov. 2021, [Online]: [arxiv.org/abs/2111.02054](https://arxiv.org/abs/2111.02054)
- [R2] **Y. Zhang**, R. Madani, and J. Lavaei, “Conic Relaxations for Power System State Estimation with Line Measurements,” Apr. 2017, [Online]: [arxiv.org/abs/1704.00133](https://arxiv.org/abs/1704.00133)
- [R1] **Y. Zhang**, N. Gatsis, and G. Giannakis, “Robust Energy Management for Microgrids With High-Penetration Renewables,” Jul. 2012, [Online]: [arxiv.org/abs/1207.4831](https://arxiv.org/abs/1207.4831)

### PhD Thesis

- [T1] **Y. Zhang**, “Resource Management for Sustainable Power Grids and Wireless Networks: Distributed and Robust Designs,” Ph.D. Thesis, ECE Department, University of Minnesota, Jul. 2015.  
Committee: Prodromos Daoutidis, Sairaj Dhople, Georgios Giannakis, and Mostafa Kaveh (chair).

### Posters

- [PO1] J. Miao, J. Chhabra, and **Y. Zhang**, “Medium-term Wind Power Forecasting via Recurrent Neural Networks,” 1st conference on Machine Learning in Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, Jun. 6-8, 2018.

### Patents

- [PA5] C. Xu, Y. Wu, **Y. Zhang**, H.-W. Luo, and H. Yu, “Eight-Antenna Channel Estimation Method for OFDM Demodulating End,” CHN invention patent, pub. No.: CN 101667981 B (grant), 2012-10-31.
- [PA4] **Y. Zhang**, H.-W. Luo, L. Chen, C. Xu, and W. Guan, “A Low Complexity User Selection Method in Multiuser MIMO Broadcasting Channels,” CHN invention patent, pub. No.: CN 101499837 B (grant), 2012-09-05.
- [PA3] L. Chen, H.-W. Luo, F. She, **Y. Zhang**, and J. Zhang, “Method and Device of Space Division Multiple Address System Based on Codebook of Optimal Quantization Error,” CHN invention patent. pub. No.: CN 101286756 B (grant), 2012-02-29.
- [PA2] C. Xu, Y. Wu, **Y. Zhang**, H.-W. Luo, and H. Yu, “Multi-User Multi-Antenna Two-Stage Limited Feedback Method,” CHN invention patent. pub. No.: CN 101695008 B (app.), 2010-04-14.
- [PA1] C. Xu, H.-W. Luo, L. Chen, **Y. Zhang**, and W. Guan, “Method for Rapidly Matching Codebook of MIMO System Subscriber Terminal,” CHN invention patent. pub. No.: CN 101465684 B (app.), 2009-06-24.

## FUNDING

- Principal Investigator, “Empowering Grid Resilience: Harnessing Campus Microgrids and Battery Storage for Reinforcing Community Power Enhancement,” CITRIS Interdisciplinary Innovation Program (I2P) Fund, Oct. 2023.
- Principal Investigator, “Feasibility Study of UC MBEST Microgrid and SGIP Proposal,” Encored Technologies USA, Inc., Aug 2021.
- Principal Investigator, Innovative Mentoring Program Funding Award, Feb. 2020.
- Principal Investigator, “Modernizing Power System Planning and Operation to Improve Grid Resilience Against Hazardous Events”, Hellman Fellowship Award, June 2019.
- Lead Principal Investigator, “Multi-hazard risk analysis to inform distribution grid upgrades for reliability and resilience,” CITRIS and the Banatao Institute 2019 Seed Fund, Apr. 2019.
- Principal Investigator for the Faculty Research Grant (FRG): “Modernizing Power Grid Infrastructure Against Extreme Natural Hazards,” Committee on Research of UC Santa Cruz, Apr. 2019.
- Principal Investigator, “Smart Monitoring and Predictive Learning for Sustainable Microgrids,” UCSC Faculty Research Grant (FRG), May 2018.
- Input for the NSF-CCSS proposal “Smart-Grid Powered Green Communications in Heterogeneous Networks,” Jun. 2015. This proposal was funded under grant number ECCS-1508993 (PI: Xin Wang, co-PI: Georgios Giannakis).
- Input for the NSF-CCF proposal “From Communication to Power Networks: Adaptive Energy Management for Power Systems with Renewables,” Sep. 2014. This proposal was funded under grant number CCF-1423316 (PI: Georgios Giannakis).
- Input for the NSF-CyberSEES proposal “Tenable Power Distribution Networks,” Sep. 2014. This proposal was funded under grant number CCF-1442686 (PI: Georgios Giannakis, Co-PI: Sairaj Dhople).
- Input for the NSF-RIPS proposal “Distributed Power and Fuels in Rural Grids,” Mar. 2014 (PI: Georgios Giannakis).
- Input for the NSF-EPAS proposal “Robust Energy Control for Microgrids with Renewables,” Oct. 2012 (PI: Georgios Giannakis).
- Input for the NSF-CPS proposal “Inference and Management for the Power Grid: Distributed and Robust Designs,” Mar. 2012 (PI: Georgios Giannakis).

## PRESS

- [Restoring Microgrids after Power Loss Requires Smarts](#), *IEEE Spectrum*, 12/2023.
- [AI-system Boosts Microgrid Efficiency for Rapid Power Outage Recovery](#), *Interesting Engineering*, 12/2023.
- [Decentralizing the Grid to Better Manage Power Outages](#), *Engineers Outlook*, 12/2023.
- [Smart Microgrids Can Restore Power More Efficiently and Reliably in An Outage](#), *UC Santa Cruz Newscenter*, 12/2023.
- [An AI-based Approach to Microgrids that Can Restore Power More Efficiently and Reliably in the Event of a Power Failure](#), *TikSaviems*, 12/2023.
- [Smart Microgrids Can Restore Power More Efficiently and Reliably in An Outage](#), *Bioengineer.org*, 11/2023.
- [An AI-based Approach to Microgrids that Can Restore Power More Efficiently and Reliably in An Outage](#), *TechXplore*, 11/2023.
- [The Role of Microgrids in Providing Reliable and Equitable Access to Electricity](#), *California Council on Science and Technology (CCST) Panel*, 03/2022.
- [How UC Santa Cruz Engineers are Proposing Ways to Improve Electrical Delivery](#), *Santa Cruz Tech Beat*, 01/2020
- [The Coming Revolution in Smart Electric Power](#), *The New York Academy of Sciences*, Fall 2017.

## HONOR & AWARD

- Institute of Industrial and Systems Engineers (IISE) Energy Systems Division Outstanding Young Investigator Award (runne-up), 2025
- Early Career Best Paper Award in the Energy, Natural Resources, and the Environment (ENRE) section, INFORMS, 2021
- IEEE Signal Processing Society (SPS) Travel Grant, 2014
- SIAM Student Travel Award, 2014
- PhD Student Travel Fellowship, Dept of ECE, UMN, 2014
- TCIPG Summer School Scholarship, 2013
- ECE Departmental Fellowship, UMN, 2010
- Shanghai Outstanding Graduate, 2010
- Merit Student of SJTU, 2009
- Huawei Scholarship, 2009
- Infineon Technologies Scholarship, 2009
- First-Class/Second-Class Academic Excellence Scholarship, SJTU, 2008/2007
- The Valedictorian at the WUT Commencement 2006
- Merit Student of Hubei Province, 2006
- Outstanding Graduate of WUT, 2005
- Pacemaker to Merit Student of WUT, Highest Honor (1‰), 2005
- Outstanding Merit Student of WUT, First-Class Scholarship, 2004
- Merit Student of WUT, Second-Class Scholarship, 2003

## TEACHING

- *ECE279: Optimization and Control for Electric Power Systems*, Winter 2018, Spring 2019, Winter 2021-2024
- *ECE253/CMPS250: Introduction to Information Theory*, Spring & Fall 2019, Fall 2020, Fall 2022-2023
- *ECE180J: Advanced Renewable Energy Sources, Energy Storage, and Smart Grids*, Spring 2018-2024
- *ECE103: Signals and Systems*, Fall 2021, 2024
- *ECE290: Graduate Seminar*, 2017-2019
- *ECE280Z: Seminar on Smart Grids and Data Analytics*, 2017-2025
- *Cluster 6: Introduction to Smart and Sustainable Power*, The California State Summer School for Mathematics and Science (COSMOS), Summer 2021-2024
- *IEOR290 Control and Optim. for Power Syst.*, Spring 2016-17, guest lecturer, UCB
- *EE8581 Detection and Estimation Theory*, Spring 2015, TA, UMN
- *EE3005 Fundamental of Electrical Engr.*, Fall 2010 & Spring 2011, TA, UMN
- *ES320 Fundamental Circuits for Commun.*, Fall 2008, TA, SJTU

## COMPETITION

- My research team won 1st place in the competition: [Learning to Run a Power Network - Delft 2023](#), an international challenge focused on optimizing power grid operations through advanced machine learning techniques.

## TALK

- Panel, INFORMS-SF Bay Area IRAC 2025, UC Berkeley, Sept 2025
- Panel “Community Choice Energy and Electricity Market,” 2025 Global Green Development Summit (GGDS), Stanford University, Aug. 2025
- Keynote at the 2nd Intl. Conference on AI and Machine Learning, June 2025
- Smart Grid Seminar, Bits & Watts Initiative, Stanford University, Feb. 2025
- MADDD Seminar, Department of Mathematics, UC Davis, Oct. 2019
- EECS Department Seminar, UC Merced, Sep. 2019
- CROSS Symposium, UC Santa Cruz, CA, 2017
- Nicholas school of the Environment, Duke University, NC, 2017
- ECE Department, Missouri University of Science and Technology, MO, 2017



- Department of Engineering Technology, University of Houston, TX, 2017
- ECE Department, New York University, NY, 2017
- eCAL Seminar, UC Berkeley, CA, 2016
- ECE Department, University of Louisville, KY, 2016
- ECE Department, Southern Illinois University, IL, 2015
- Foundations of Resilient CybEr-physical Systems (FORCES), UC Berkeley, CA, 2015
- WindLogics Inc., Saint Paul, MN, 2013
- Honeywell, Minneapolis, MN, 2012

## Completed Ph.D. Theses

- [S3] Kejun Chen, “Power Flow Analysis and Optimal Power Flow with Physics-Informed Deep Learning,” Feb. 2025; now with NREL (Postdoc).
- [S2] Gabriel Intriago, “Advanced Anomaly Detection Techniques for Cyber-Physical Power Systems,” June 2024; now with Expedia Group (Machine Learning Scientist).
- [S1] Jing Xiong, “Deep Learning Based Load Forecasting and Monitoring for Electric Power Systems,” Dec. 2023; now with Airbnb (Machine Learning Engineer).

## SERVICE

- Panelist/Panel Reviewer
  - NSF Energy, Power, Control, and Networks (EPCN) review panel, Oct. 2023
  - California Council on Science and Technology (CCST) Expert Briefing Panel on “The Role of Microgrids in Providing Reliable and Equitable Access to Electricity”, Mar. 2022
- Conference/Workshop Organizer, Session Chair, or TPC Member:
  - *IEEE SmartGridComm Workshop on Machine Learning and Big Data Analytics in Power Distribution Systems* (2020)
  - *The Fifth Bay Area Optimization Meeting* (May 2019)
  - *Smart Power and CPS Workshop, CROSS Symposium* (Oct. 2018)
  - *IEEE Global Conf. on Signal and Information Processing* (2018-2019)
  - *IEEE Intl. Conf. on Smart Grid Communications* (2016–2015)
  - *IEEE Conf. on Decision and Control* (2014)
  - *INFORMS Annual Meeting* (2015-2020)
- Committee/Board Member:
  - IEEE IES Technical Committee on Resilience and Security for Industrial Applications (ReSia) (2020-present).
  - Associate Editor, Conference Editorial Board of IEEE Control Systems Society (2018-2022)
  - Committee on Research of UC Santa Cruz (2018-2019)
  - PhD/MS thesis and qualifying exam committee member
  - Faculty recruitment search committee member
  - ABET and undergraduate/graduate committee member
  - Swiss Innovation Valley (2017-present)
- Broader Service: Faculty mentor for Cultivamos Excelencia and Cal-Bridge programs
- Paper Reviewer:
  - *IEEE Transactions on Power Systems*
  - *IEEE Transactions on Smart Grid*

- *IEEE Transactions on Sustainable Energy*
- *IEEE Transactions on Automatic Control*
- *IEEE Transactions on Control Systems Technology*
- *IEEE Transaction on Control of Network Systems*
- *IEEE Transactions on Control Systems Technology*
- *IEEE Journal on Selected Areas in Communications*
- *IEEE Transactions on Signal Processing*
- *IEEE Transactions on Communications*
- *IEEE Transactions on Wireless Communications*
- *IEEE Transactions on Industrial Electronics*
- *IEEE Transactions on Vehicular Technology*
- *IEEE Transactions on Network and Service Management*
- *IEEE Transactions on Systems, Man, and Cybernetics: Systems*
- *IEEE Open Access Journal of Power and Energy*
- *IEEE Signal Processing Letters*
- *IEEE Wireless Communications Letters*
- *IEEE Power Engineering Letters*
- *Electric Power Systems Research*
- *Annual Reviews in Control*
- *IET Generation, Transmission & Distribution*
- *IET Renewable Power Generation*
- *Intl. Journal of Electrical Power & Energy Systems*
- *Intl. Transactions on Electrical Energy Systems*
- *Sustainable Energy, Grids and Networks*
- *MDPI - Energies*
- *ACM Computing Surveys*
- *ACM Trans. on Modeling and Performance Evaluation of Computing Syst.*
- *Operations Research*
- *Annals of Operations Research*
- *Intl. Journal of Sustainable Transportation*
- *Transportmetrica A: Transport Science*
- *Wiley Complexity*
- *Journal of Electronic Materials*
- *IEEE Conference on Decision and Control*
- *IEEE American Control Conference*
- *IEEE Intl. Conference on Smart Grid Communications*
- *IEEE Intl. Conference on Acoustics, Speech and Signal Proc.*
- *IEEE Global Communications Conference*
- *IEEE Intl. Wrksp on Computational Advances in Multi-Sensor Adaptive Proc.*
- *IEEE Intl. Conference on Computing, Networking and Communications*
- *North American Power Symposium (NAPS)*

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