Dr. Ying Zhang (she/her/hers)

Ph.D. in Electrical Engineering
Assistant Professor, Oklahoma State University, Stillwater, OK 74078, U.S.
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Professional Summary

• 30 peer-reviewed papers (including one Global 1% ESI highly cited paper and 2 Best Papers). • Founded projects (>$1.2 M, $1.1M as OSU PI) from NSF and DOE. • Inaugural Outstanding Doctoral Dissertation Award, IEEE PES, 2023 • 1100 Google Scholar citations (h-index:11) • Graduated one Ph.D. student and one M.S. student (with thesis option) • Supervised 1 post-doc, 4 Ph.D., and 2 undergraduate researchers.

PROFESSIONAL EXPERIENCES

Assistant Professor Jan. 2024 - Present
Oklahoma State University, School of Electrical and Computer Engineering *Stillwater, OK, U.S.*

Visiting Scholar May 2023 - June 2023
Cornell University, Department of Electrical and Computer Engineering *Ithaca, NY, U.S.*

Assistant Professor Aug. 2022 - Dec. 2023
Montana State University, Department of Electrical and Computer Engineering *Bozeman, MT, U.S.*

Postdoctoral Research Associate Aug. 2020 - Aug. 2022
Brookhaven National Laboratory, Department of Interdisciplinary Science *Upton, NY, U.S.*

Graduate Research Assistant Aug. 2017 - Aug. 2020
Southern Methodist University, Department of Electrical and Computer Engineering *Dallas, TX, U.S.*

EDUCATION

Ph.D. in Electrical Engineering 2020
Southern Methodist University *Dallas, TX, U.S.*

Honor: Moody Dissertation Fellowship, Frederick E. Terman Award

M.S. in Electrical Engineering 2017
Shandong University *Jinan, Shandong, China*

Honor: Outstanding Graduate Thesis in Shandong Province

B.S. in Electrical Engineering 2014
Shandong University *Jinan, Shandong, China*

Honor: National Scholarship for Highest Academic Distinction

RESEARCH GRANTS AND CONTRACTS

[1] Co-Principal Investigator (OSU PI), "RII FEC: Accelerating Community-Centric Energy Transformation through AI-driven Digital Twinning for Climate-Aware Resilience", National Science Foundation (NSF), $1,100,000, 2024-2028.

[2] Participant, "RII Track-1: Socially Sustainable Solutions for Water, Carbon, and Infrastructure Resilience in Oklahoma", National Science Foundation (NSF), $ 54,998, 2024-2028.

[3] Subcontract (OSU PI), "POSE: Phase I: Toward an Open-Source Ecosystem for Power Systems Research, Education, and Industry Applications", National Science Foundation (NSF), $ 87,939, 2024-2025.

[4] Principal Investigator, "Physics-Informed Machine Learning to Enhance Distribution Grid Situational Awareness", Faulty Excellent Grant Program, Montana State University, $ 5,000, 2022-2023.

AWARDS AND PROFESSIONAL RECOGNITIONS

- Best Paper Award, IEEE Power and Energy Society General Meeting, 2024
- Best Paper Award, IEEE PES Innovative Smart Grid Technologies Conference, 2024
- 2020-2022 IEEE Power and Energy Society Outstanding Doctoral Dissertation Award, 2023
- Moody Dissertation Fellowship, Southern Methodist University, 2020
- Frederick E. Terman Award, Southern Methodist University, 2020
- Outstanding Graduate Thesis, Shandong University, 2017
- First-class Scholarship for Top 2% Students, Shandong University, 2016
- Second Prize, National Mathematical Modeling Contest for Graduates, 2015
- National Scholarship for Highest Academic Distinction, Ministry of Education, China, 2013
- National Scholarship for Highest Academic Distinction, Ministry of Education, China, 2011
- First-class Scholarship for Top 2% Students, Shandong University, 2011-2013 (three in a row)

PROFESSIONAL ACTIVITIES

◦ Associate/Guest Editor

- Associate Editor, IET Generation, Transmission & Distribution, 2023-Present
- Guest Editor, Frontiers in Energy Research, Section Sustainable Energy Systems, 2023-2024
- Guest Editor, Applied Sciences, Special Issue "Research Progress on Cyber-Physical Distribution System", 2023-2024

◦ Conference Chairs and Area Chair

- Session Chair, IEEE Power and Energy Society General Meeting, 2025

◦ Technical Program Committee

- Vice Chair, Awards Subcommittee, IEEE PES Power System Operation, Planning and Economics (PSOPE) Committee, 2024-2028
- Secretary, IEEE Task Force on Distribution System State Estimation, 2019-Present

◦ Journal Reviewer

- IEEE Trans. on Smart Grid (Best Reviewer Nomination)
- IEEE Trans. on Power Systems (Best Reviewer Nomination)
- IEEE Trans. on Sustainable Energy
- IEEE Trans. on Neural Networks and Learning Systems
- IEEE Trans. on Dependable and Secure Computing
- IEEE Trans. on Vehicular Technology

- IEEE Open Access Journal of Power and Energy
- IEEE Power Engineering Letters
- Modern Power Systems and Clean Energy
- IET Generation, Transmission & Distribution
- CESS Journal of Power and Energy Systems
- IET Smart Grid
- Sustainable Computing, Informatics and Systems
- Applied Energy

◦ University, College, and Department Services

- ECE Graduate Committee, 2024-2025
- K-12 Outreach Discover Day, College of Engineering, Architecture and Technology, July 2024
- ECE Advisor, Senior Design Project, 2023-2024
- ECE Admission Committee, 2022-2023

INVITED TALK

1. "AI-Driven Digital Twinning for Climate-Energy Ecosystem", NSF Project Kick-Off Meeting, New Mexico State University, Las Cruces, NM, Nov. 2024.
2. "Physics-Informed Machine Learning to Enhance Distribution Grid Situational Awareness", the 2024 INFORMS Annual Meeting, Seattle, WA, Oct. 2024.
3. "Taylor-Expansion-Based Robust Power Flow in Unbalanced Distribution Systems: A Hybrid Data-Aided Method", the 2024 IEEE PES General Meeting, Seattle, WA, July 2024.
4. "Distribution System Situational Awareness: From Model-Based to Data-Driven and Beyond", the 2023 IEEE PES General Meeting, Orlando, FL, July 2023.
5. "Model-based and Data-driven Situational Awareness for Distribution System Monitoring and Control", Cornell University, Ithaca, NY, June 2023.
6. "AI Meets Grid: Data-driven Situational Awareness for Distribution System Monitoring and Control", Women in Data Science 2023, University of Calgary, Calgary, Canada, March 2023.
7. "Interval Distribution System State Estimation with Uncertain Line Parameters and DER Generation", Series Seminar in IEEE Task Force on Distribution System State Estimation Performance, Step. 2021.
8. "Model-based and Data-driven Situational Awareness for Distribution System Monitoring and Control", Brookhaven National Laboratory, Upton, NY, Apr. 2020.
9. "Model-based and Data-driven Situational Awareness for Distribution System Monitoring and Control", University of Texas San Antonio, San Antonio, TX, Jan. 2020.

PUBLICATIONS (H-INDEX: 11)

Journal Papers

[J1] S. Chung, **Y. Zhang***, Y. Zhang. "Knowledge-Inspired Data-Aided Robust Power Flow in Distribution Networks with ZIP Loads and High DER Penetration," IEEE Trans. Industrial Applications, 2024.

[J2] A. Zhou, M. Yang, X. Fang, and **Y. Zhang**. "Addressing Wind Power Forecast Errors in Day-Ahead Pricing With Energy Storage Systems: A Distributionally Robust Joint Chance-Constrained Approach," IEEE Trans. Sustainable Energy, 2024.

[J3] **Y. Zhang**, M. Yue, J. Wang, and S. Yoo. "Cooperative multi-agent actor-attention-critic deep reinforcement learning for adaptive grid voltage emergency control," IEEE Trans. Neural Networks and Learning Systems, 2023.

[J4] S. Chung and **Y. Zhang***. "Artificial Intelligence Applications in Electric Distribution Systems: Post-Pandemic Progress and Prospect," Applied Sciences, vol. 13, no. 12, 2023.

[J5] **Y. Zhang**, M. Yue, and J. Wang. "Off-policy deep reinforcement learning with automatic entropy adjustment for adaptive grid emergency control," Electric Power Systems Research, vol. 217, 2022.

[J6] Y. Chen, Y. Y, and **Y. Zhang**. "A Robust State Estimation Method Based on SOCP for Integrated Electricity-Heat System," IEEE Trans. Smart Grid, vol. 12, no. 1, pp. 810-820, Jan. 2021. (**Global 1% ESI Highly Cited Paper**)

[J7] **Y. Zhang**, X. Wang, J. Wang, and Y. Zhang. "Deep reinforcement learning-based volt-VAR optimization in smart distribution systems," IEEE Trans. Smart Grid, vol. 12, no. 1, pp. 361-371, Jan. 2021.

[J8] **Y. Zhang**, J. Wang, and B. Chen. "Detecting false data injection attacks in smart grids: a semi-supervised deep learning approach," IEEE Trans. Smart Grid, vol. 12, no. 1, pp. 623-634, Jan. 2021.

[J9] **Y. Zhang** and J. Wang. "Towards highly efficient state estimation with nonlinear measurements in distribution systems," IEEE Trans. Power Systems, vol. 35, no. 3, pp. 2471-2474, May 2020.

[J10] **Y. Zhang**, J. Wang, and M. Khodayar. "Graph-based faulted line identification using micro-PMU data in distribution systems," IEEE Trans. Smart Grid, vol. 11, no. 5, pp. 3982-3992, Sept. 2020.

[J11] **Y. Zhang**, J. Wang, and Z. Li. "Interval state estimation with uncertainty of distributed generation and line parameters in unbalanced distribution systems," IEEE Trans. Power Systems, vol. 35, no. 1, pp. 762-772, Jan. 2020.

[J12] **Y. Zhang**, J. Wang, and J. Liu. "Attack identification and correction for PMU GPS spoofing in unbalanced distribution systems," IEEE Trans. Smart Grid, vol. 11, no. 1, pp. 762-773, Jan. 2020.

[J13] M. Cui, M. Khodayar, C. Chen, X. Wang, and **Y. Zhang**. "Deep learning based time-varying parameter identification for system-wide load modeling," IEEE Trans. Smart Grid, vol. 10, no. 6, pp. 6102-6114, Nov. 2019.

[J14] **Y. Zhang**, J. Wang, and Z. Li. "Uncertainty modeling of distributed energy resources: techniques and challenges," Current Sustainable/Renewable Energy Report, vol. 6, no. 2, pp. 42–51, Jun. 2019.

[J15] **Y. Zhang**, J. Liang, Z. Yun, and X. Dong. "A new fault-location algorithm for series-compensated double-circuit transmission lines based on the distributed parameter model," IEEE Trans. Power Delivery, vol. 32, no. 6, pp. 2398-2407, Dec. 2017.

Selected Conference Papers

[C1] S. Chung, **Y. Zhang***, Z. Wang, F. Ding. "Taylor-Expansion-Based Robust Power Flow in Unbalanced Distribution Systems: A Hybrid Data-Aided Method," 2024 IEEE PES General Meeting, Accepted (**Best Paper Award** & **Best Poster Prize**).

[C2] **Y. Zhang*** and M. Yue. "Cooperative Multi-Agent Deep Reinforcement Learning for Adaptive Decentralized Emergency Voltage Control," 2024 IEEE PES ISGT NA, DC Washington (**Best Paper Award**).

[C3] **Y. Zhang***, J. Zhao, D. Shi, and S. Chung. "Deep Reinforcement Learning-Enabled Adaptive Forecasting-Aided State Estimation in Distribution Systems with Multi-Source Multi-Rate Data," 2024 IEEE PES ISGT NA, D.C. Washington.

[C4] T. Zhao, **Y. Zhang**, and M. Yue. "Scalable Deep Reinforcement Learning-based Volt-VAR Optimization in Distribution Systems: A Mean-field Approach," 2022 IEEE PES General Meeting, Denver, CO, pp. 1-5.

[C5] **Y. Zhang**, Y. Chen, J. Wang, and M. Yue. "Decentralized Coordinated State Estimation in Integrated Transmission and Distribution Systems," 2022 IEEE PES ISGT NA, New Orleans, LA, pp. 1-5.

[C6] **Y. Zhang**, M. Yue, and J. Wang. "Adaptive Load Shedding for Grid Emergency Control via Deep Reinforcement Learning," 2021 IEEE PES General Meeting, Washington, D.C., pp. 1-5.

[C7]**Y. Zhang**, J. Wang, and Z. Li. "Interval state estimation with measurement and network parameter uncertainty in unbalanced distribution systems," 2019 IEEE PES General Meeting, Atlanta, GA, pp. 1-5.

STUDENTS SUPERVISED

- Current Students

Jiahao Chen	Ph.D. Student
Yuanshuo Zhang	Ph.D. Student
Sungjoo Chung	Ph.D. Student
Zaid Ibn Mahmood	Ph.D. Student
Luke Dwayne Cardiel	Undergraduate Student

- Graduated Students

Jackson Blum	′24 BS from MSU

TEACHING

ECEN 6123 AI for Engineering Systems: Grid-Oriented Applications (Brand new in OSU)	25 Spring
ECEN 3714 Network Analysis	24 Fall
ECEN 5123 Engineering System Reliability Evaluation	24 Spring
EELE 452/552 Power System Operation and Control	23 Fall
EELE 454 Power System Design and Analysis	23 Spring
EELE 455/555 Alternative Energy Distributed Generation Systems	22 Fall