Jiaqi Wu

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Education

Arizona State University Aug. 2021 – Expected in 2026
Doctor of Philosophy, Electrical Engineering *Tempe, Arizona, United States*
Advisor: **Dr. Yang Weng**

Arizona State University Aug. 2019 – May 2021
Master of Science, Electrical Engineering *Tempe, Arizona, United States*
Advisor: **Dr. Yang Weng**

Shandong University Sept. 2013 – June 2017
Bachelor of Science, Electrical Engineering *Jinan, Shandong, China*

Xi'an Jiaotong University Sept. 2014 – June 2015
Undergraduate Exchange Program, Electrical Engineering *Xi'an, Shaanxi, China*

Experience

Research Associate Aug. 2021 – Present
Arizona State University *Tempe, Arizona, United States*

- Support technical projects by leveraging power system modeling, simulation, data collection, analysis, and problem-solving.
- Independently lead research initiatives, contributing to ongoing academic projects.
- Prepare presentations and reports to effectively communicate research findings.

Teaching Associate Aug. 2021 – May 2022 | Aug. 2024 – Present
Arizona State University *Tempe, Arizona, United States*

- Serve as Head TA for EEE 360: Energy Systems and Power Electronics, a core course for power systems undergraduate students.
- Provide comprehensive instructional support to students through lab supervision, grading assignments, holding office hours, and offering personalized homework guidance.

Graduate Service Assistant Dec. 2020 – Aug. 2021
Arizona State University *Tempe, Arizona, United States*

- Assist in the collection and organization of research data.
- Design reports and visualizations to summarize research outcomes.

Undergraduate Service Assistant Mar. 2013 – June 2014 | Sep. 2015 – June 2016
Shandong University *Jinan, Shandong, China*

- Address faculty and student inquiries, ensuring timely resolution of issues.
- Facilitate communication between faculty and students.

Projects

U.S. DOE: Office of Energy Efficiency and Renewable Energy (EERE) Aug. 2020 – Mar. 2023

- **Project Name:** Enhancing Grid Reliability and Resilience through Novel DER Control, Total Situational Awareness, and Integrated Distribution-Transmission Representation
- **Award Number:** DE-EE0008773
- Develop a spatial-temporal long short-term memory (ST-LSTM)-based dynamic hosting capacity analysis tool and integrate it to the an end-to-end solar energy optimization platform (e-SEOP).

U.S. DOE: Office of Energy Efficiency and Renewable Energy (EERE) Aug. 2021 – Aug. 2022

- **Project Name:** Artificial Intelligence for Robust Integration of AMI and PMU Data to Significantly Boost Renewable Penetration

- **Award Number:** DE-EE0009355
- Utilize generative adversarial networks (GANs) to generate robust phasor measurement unit (PMU) data from advanced metering infrastructure (AMI) data, significantly enhancing the grid observability for renewable energy integration.

Oncor Electric Delivery July 2023 – Present

- **Project Name:** Machine Learning on Topology Identification in the Distribution Grid for 10 Million Customers
- Design the machine learning-based algorithm for meter-transformer connectivity correction.
- Design the machine learning-based algorithm for switch-level phase identification.

Air Force Office of Scientific Research (AFOSR) Nov. 2023 – Mar. 2024

- **Project Name:** Digital Twin Deep Neural Networks for Next-Generation DDDAS Monitoring and Control
- Design the physics regularization for input convex neural network (ICNN) and conducted convex voltage regulation experiments.

Skills

Programming Languages: Python, MATLAB
Libraries: PyTorch, scikit-learn, TensorFlow, pandas, NumPy, Matplotlib
Softwares: OpenDSS, MATPOWER, CYME, PSS/E, PLECS, AMPL
Hardwares: OPAL-RT, SEL

Courses

Power Engineering

EEE 572: **Advanced Power Electronics (A)**
EEE 577: **Power Energy Operations and Planning (A)**
EEE 579: **Power Transmission and Distribution (A+)**
EEE 598: **Renewable Electric Energy Systems (A+)**
EEE 598: **Power System Reliability (A)**
EEE 591: **Power Electronics and Power Management (A+)**
EEE 591: **Power Systems Analysis (A)**

Machine Learning

CSE 575: **Statistical Machine Learning (A)**
EEE 511: **Artificial Neural Computation (A)**
EEE 598: **Game-Theory: Models, Algorithms, and Applications (A+)**
EEE 598: **Reinforcement Learning in Robotics (A)**
EEE 598: **Statistical Machine Learning: From Theory to Algorithms (A)**
EEE 598: **Statistical Machine Learning: From Theory to Practice (A+)**

Honors & Awards

University Graduate Fellowship Arizona State University, 2021
Electrical Engineering Department Scholarship Arizona State University, 2021
Outstanding Undergraduate Thesis Shandong University, 2017
Third Prize China National Undergraduate Electronics Design Contest, 2015
Second Campus Scholarship Shandong University, 2014

Publications

1. **Jiaqi Wu**, Jingyi Yuan, Yang Weng, and Raja Ayyanar, "Spatial-Temporal Deep Learning for Hosting Capacity Analysis in Distribution Grids," in *IEEE Transactions on Smart Grid*, vol. 14, no. 1, pp. 354-364, Jan. 2023, doi: 10.1109/TSG.2022.3196943.

2. **Jiaqi Wu**, Jingyi Yuan, Yang Weng, and Raja Ayyanar, "Learn Dynamic Hosting Capacity Based on Voltage Sensitivity Analysis," *2023 IEEE Power & Energy Society General Meeting (PESGM)*, Orlando, FL, USA, 2023, pp. 1-5, doi: 10.1109/PESGM52003.2023.10252543.

3. **Jiaqi Wu**, Jingyi Yuan, Yang Weng, and Guangwen Wang, "A Unified Approach to Enforce Non-Negativity Constraint in Neural Network Approximation for Optimal Voltage Regulation," *2025 Proceedings of the 58th Hawaii International Conference on System Sciences (HICSS)*, Big Island, HI, USA, 2025, pp. 3018-3027, doi: 10.24251/hicss.2025.364.

4. Jingyi Yuan, **Jiaqi Wu**, Yang Weng, and Erik Blasch, "SVR-Enhanced Optimization for Voltage Control in Observability-Limited Distribution Systems," *Accepted by 2025 IEEE Power & Energy Society General Meeting (PESGM)*, Austin, TX, USA, 2025.