ZHENYU ZHAO

London, UK ⋄ z.zhao1@imperial.ac.uk

EDUCATION

Temple University, Philadelphia, PA, USA　　　　　　　　　　　　　　　Jan 2021 – Dec 2024
Ph.D. in Computer and Information Science (in 2021 Spring)
Ph.D. in Electrical and Computer Engineering

George Washington University, Washington D.C., USA　　　　　　　　　Aug 2018 – May 2020
Master of Science in Electrical Engineering

Wuhan University of Technology, Wuhan, Hubei, China　　　　　　　　　Aug 2014 – May 2018
Bachelor of Engineering in Automation

WORK EXPERIENCE

Research Associate　　　　　　　　　　　　　　　　　　　　　　　　Apr 2025 - Present
Imperial College London　　　　　　　　　　　　　　　　　　　　　　*London, England*
- Participating in Horizon Europe projects *R3volution* and *CSSBoost*
- Supervised Master students' thesis projects

Visiting Researcher　　　　　　　　　　　　　　　　　　　　　　　Nov 2024 - Mar 2025
University of Birmingham　　　　　　　　　　　　　　　　　　　　*Birmingham, England*
- Contributed to the preparation of research and grant proposal
- Mentored first-year PhD students

Grid Software Intern　　　　　　　　　　　　　　　　　　　　　　Jun 2024 - Aug 2024
Siemens　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Minnetonka, MN*
- Participated in upgrading Transmission Network Analysis from Fortran to Python

Intern　　　　　　　　　　　　　　　　　　　　　　　　　　　　Jun 2023 - Apr 2024
PJM Interconnection　　　　　　　　　　　　　　　　　　　　　　　*Audubon, PA*
- Developed a periodic retrieval system to archive transmission-level nodal load data
- Applied machine learning models for net nodal load disaggregation and prediction

RESEARCH AND TEACHING EXPERIENCE

Graduate Research Assistant　　　　　　　　　　　　　　　　　　Jan 2021 - Nov 2024
Temple University　　　　　　　　　　　　　　　　　　　　　　　*Philadelphia, PA*
- Designed and implmented deep learning model for nodal load disaggregation based on
  nodal–zonal mapping, in partnership with `PJM Interconnection`
- Developed an LSTM-based deep learning model for hydrogen fuel cell health monitoring with
  `Plug Power`, enabling predictive diagnostics

Graduate Teaching Assistant　　　　　　　　　　　　　　　　　　Jan 2021 - Dec 2021
Temple University　　　　　　　　　　　　　　　　　　　　　　　*Philadelphia, PA*
- Lectured and graded for CIS 1051 (Introduction to Python) lab,
  CIS 3319 (Wireless Network and Security) lab, and CIS 3329 (Network Architectures) lab

ACADEMIC SERVICES

– Reviewer for leading journals and conferences in power and transportation electrification, including: *IET Smart Grid, IEEE Transactions on Smart Grid, IEEE Transactions on Transportation Electrification, IEEE Vehicle Power and Propulsion Conference (VPPC), IEEE Conference on Decision and Control (CDC)*, and *IEEE Energy Conversion Congress and Exposition (ECCE)*

– Session Chair at the *2025 IEEE Energy Conversion Congress & Exposition (ECCE)*, Philadelphia, PA, October 19–23, 2025

TECHNICAL SKILLS

- **Data Science & Modeling:** Quantitative analysis, time-series modeling, topological data analysis, graph neural networks (GNNs), forecasting, and anomaly detection

- **Machine Learning:** Supervised and semi-supervised learning, deep learning architectures, spatio-temporal modeling, and model interpretability

- **Programming Languages:** Python (NumPy, Pandas, PyTorch, scikit-learn), SQL, FORTRAN

RESEARCH AREAS

- Machine learning applications in life cycle assessment, circular economy evaluation, and risk management

- Transmission-scale renewable energy modeling and optimization

- Power systems monitoring using graph-based deep learning framework

- Hydrogen-based energy systems for industrial and transportation applications

- Prognostic health monitoring system via deep learning

SELECTED PUBLICATIONS

PhD Thesis

- **Z. Zhao**. "Semi-Supervised Deep Learning Frameworks for Transmission-Scale Load Disaggregation and Behind-The-Meter Solar Prediction," Temple University, 2024

Journal Articles

- **Z. Zhao**, D. Moscovitz, S. Wang, L. Du, and X. Fan, "Deep Factorization Machine Learning for Disaggregation of Transmission Load Profiles With High Penetration of Behind-the-Meter Solar," *IEEE Transactions on Industry Applications*, doi: 10.1109/TIA.2025.3530864

- D. Moscovitz, **Z. Zhao**, L. Du, and X. Fan, "Semi-Supervised, Non-Intrusive Disaggregation of Nodal Load Profiles with Significant Behind-the-Meter Solar Generation," *IEEE Transactions on Power Systems*, doi: 10.1109/TPWRS.2023.3334995

- S. Ziyabari, **Z. Zhao**, L. Du, and S.K. Biswas, "Multi-Branch ResNet-Transformer for Short-Term Spatio Temporal Solar Irradiance Forecasting," *IEEE Transactions on Industry Applications*, doi: 10.1109/TIA.2023.3285202

Conference Papers

- **Z. Zhao**, K. Swider-Lyons, D. Skidmore and L. Du, "Data-Driven Prognostic Health Monitoring of Key Components in Hydrogen Fuel Cells," *2025 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium*, Anaheim, CA, June 18–20, pp. 1-5, doi: 10.1109/ITEC63604.2025.11097992

- **Z. Zhao**, M. Chen, L. Du, D. Moscovitz, and X. Fan, "GNN-Based Autoformer For Imputing Missing Data in Transmission Grid Load Profiles Considering Seasonal Patterns," *2025 IEEE Power & Energy Society General Meeting (PESGM)*, Austin, TX, July 27–31, 2025, to be indexed

- M. Chen, **Z. Zhao**, L. Du, Y. Chen, and D. Moscovitz, "Characterization of Transmission Nodal Profiles via Graph-Embedded Topological Data Analysis," *2025 IEEE Power & Energy Society General Meeting (PESGM)*, Austin, TX, July 27–31, 2025, to be indexed

- **Z. Zhao**, D. Moscovitz, L. Du, and X. Fan, "Factorization Machine Learning for Disaggregation of Transmission Load Profiles with High Penetration of Behind-the-Meter Solar," *2023 IEEE Energy Conversion Congress & Exposition*, Nashville, TN, October 29–November 2, 2023, pp. 1278-1282, doi:10.1109/ECCE53617.2023.1036210

- **Z. Zhao**, Y. Chen, and L. Du, "Modeling and Classification of EV Charging Profiles Utilizing Topological Data Analysis," *2023 IEEE Transportation Electrification Conference & Expo (ITEC)*, Detroit, MI, June 19–21, 2023, pp. 1-6, doi: 10.1109/ITEC55900.2023.10187089

- **Z. Zhao**, D. Moscovitz, S. Wang, X. Fan, and L. Du, "Semi-Supervised Disaggregation of Daily Load Profiles at Transmission Buses with Significant Behind-the-Meter Solar Generations," *2022 IEEE Energy Conversion Congress & Exposition*, Detroit, MI, October 9–13, 2022, pp. 1-5, doi: 10.1109/ECCE50734.2022.9948155