

LING ZHANG

185 Stevens Way ♦ Seattle, WA 98195

Tel: (206)5029248 ♦ Email: lzhang18@uw.edu ♦ Personal Website

EDUCATION

University of Washington

Ph.D. Candidate in Electrical & Computer Engineering

Seattle, WA

Sept. 2018 - Jun. 2024 (expected)

Zhejiang University

M.S. in Information & Communication Engineering

Hangzhou, China

Sept. 2015 - Mar. 2018

Ocean University of China

B.E. in Electronic & Information Engineering

Qingdao, China

Sept. 2011 - Jun. 2015

RESEARCH INTERESTS

My research interests center around addressing uncertainty arising from the integration of renewable energy into power grids, particularly through employing advanced learning methods and optimization techniques.

PUBLICATIONS

Journal Papers

- [1] **L. Zhang**, D. Tabas, and B. Zhang, “An Efficient Learning-based Solver for Two-stage DC Optimal Power Flow with Feasibility Guarantees,” submitted to *IEEE Transactions on Power Systems* (under review), *arXiv preprint: 2304.01409*.
- [2] Yize, Chen, **L. Zhang**, and B. Zhang, “Learning to Solve DCOPF: A Duality Approach,” *Electric Power Systems Research*, 2022.
- [3] **L. Zhang**, Y. Chen, and B. Zhang, “A Convex Neural Network Solver for DCOPF with Generalization Guarantees,” *IEEE Transactions on Control of Networked Systems*, 2021.
- [4] **L. Zhang**, and B. Zhang, “Scenario Forecasting of Residential Load Profiles,” *IEEE Journal on Selected Areas in Communications, Special Issue on Communications and Data Analytics in Smart Grid*, 2020.
- [5] **L. Zhang**, Y. Cai, Q. Shi, G. Yu, and G. Y. Li, “Cost-Efficient Cellular Networks Powered by Micro-grids,” *IEEE Transactions on Wireless Communication*, 2017.

Conference Papers

- [6] **L. Zhang**, D. Tabas, and B. Zhang, “Convex Restriction of Feasible Sets for AC Radial Networks,” submitted to *XXII Power Systems Computation Conference (PSCC 2024)*, *arXiv preprint: 2310.00549*.
- [7] **L. Zhang**, and B. Zhang, “Learning to Solve the AC Optimal Power Flow via A Lagrangian Approach,” *2022 North American Power Symposium (NAPS)*, 2022.
- [8] **L. Zhang**, and B. Zhang, “An Iterative Approach to Improving Solution Quality for AC Optimal Power Flow Problems,” *e-Energy '22: Proceedings of the Thirteenth ACM International Conference on Future Energy Systems*, 2022. (Best Paper Finalist)

- [9] Y. Chen, Y. Tan, **L. Zhang** and Baosen Zhang, “Vulnerabilities of Power System Operations to Load Forecasting Data Injection Attacks,” *2021 IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm)*, 2021.

TALKS & PRESENTATIONS

Invited Talks

- [1] “An Iterative Approach to Improving Solution Quality for AC Optimal Power Flow Problems,” *INFORMS Annual Meeting*, Anaheim, California, 2021/10.
- [2] “Scenario Forecasting of Residential Load Profiles,” *INFORMS Annual Meeting*, online, 2020/10.

Oral Presentations

- [3] “An Iterative Approach to Improving Solution Quality for AC Optimal Power Flow Problems,” *INFORMS Annual Meeting*, Phoenix, Arizona, 2023/10.
- [4] “An Efficient Learning-based Solver for Two-stage DC Optimal Power Flow with Feasibility Guarantees,” *the 6th Workshop on Autonomous Energy Systems at National Renewable Energy Laboratory*, Golden, Colorado, 2023/09.
- [5] “Learning to Solve the AC Optimal Power Flow via A Lagrangian Approach,” *2022 North American Power Symposium*, University of Utah, Utah, 2022/10.
- [6] “An Iterative Approach to Improving Solution Quality for AC Optimal Power Flow Problems,” *ACM e-Energy 2022*, online, 2022/06.
- [7] “An Iterative Approach to Improving Solution Quality for AC Optimal Power Flow Problems,” *Tackling Climate Change with Machine Learning workshop at ICML 2021*, online, 2021/07.

Poster Presentations

- [8] “An Efficient Learning-based Solver for Two-stage DC Optimal Power Flow with Feasibility Guarantees,” *IEEE PES General Meeting*, Orlando, Florida, 2023/07.
- [9] “An Efficient Learning-based Solver for Two-stage DC Optimal Power Flow with Feasibility Guarantees,” *Grid Science Winter School and Conference*, Los Alamos National Laboratory, New Mexico, 2023/01.

INDUSTRY EXPERIENCE

Electricity Market Research Intern

Mentor: Dr. Todd Levin

Argonne National Laboratory

Oct. 2021 - Dec. 2021

- Participated in the project *Translate Climate Extreme Event Projections into Grid Planning Models*.
- In this project, we evaluated various approaches to define and identify representative periods of extreme events based on time-series outputs from a climate model, and generated scenario forecasts for these extreme events to assist climate-aware grid planning.

TEACHING EXPERIENCE

Department of Electrical & Computer Engineering

Teaching Assistant Course: EE 242 - Signals, Systems and Data

University of Washington

Spring 2023

- Led instructional sessions to provide step-by-step problem-solving guidance to students, organized practice problems and solutions, and held office hours to address students' questions.

Department of Information & Communication Engineering

Zhejiang University

Teaching Assistant Course: ISEE 11120170 - Signal Processing

Spring 2017

- Led instructional sessions, graded assignments and exams and provided constructive feedback to students, and held office hours to address students' questions.

HONORS & AWARDS

2023/01	Travel Grant for the 2023 Grid Science Winter School, Los Alamos National Lab
2022/06	Best Paper Finalist, ACM e-Energy '22
2019/09	Clean Energy Institute (CEI) Fellowship, University of Washington
2018/04	College of Engineering Recruitment Fellowship, University of Washington
2018/03	Excellent Postgraduate Students' Award, Department of Education of Zhejiang Province
2018/03	National Scholarship, Chinese Ministry of Education (top 3%)

REFERENCES

Baosen Zhang
Associate Professor
Department of Electrical and Computer Engineering
University of Washington
Phone: 206-616-3818,
Email: zhangbao@ece.uw.edu

Daniel Kirschen
Professor
Department of Electrical and Computer Engineering
University of Washington
Phone: 206-543-2174,
Email: kirschen@ece.uw.edu

Yuanyuan Shi
Assistant Professor
Department of Electrical and Computer Engineering
University of California San Diego
Email: yus047@ucsd.edu

Zhi Zhou
Principal Computational Scientist
Electricity Markets Team, Energy Systems and Infrastructure Analysis Division
Argonne National Laboratory
Phone: 630-252-2894,
Email: zzhou@anl.gov