

JINHAO LIANG

Shenzhen, Guangdong, P.R.China

+86-138-3950-5976 ◇ jinhaoliang1@link.cuhk.edu.cn ◇ www.liangjinhao.com

RESEARCH INTERESTS

I am particularly interested in enabling a more reliable and efficient power grid from a computer science perspective, mainly through learning and optimization methodologies. Currently, my research topics include: 1) Developing robust and efficient algorithms to manage uncertainties in power system operations and electric vehicle charging; 2) Designing effective energy forecasting algorithms for both system-level and residential-level applications.

EDUCATION

The Chinese University of Hong Kong, Shenzhen M.Phil in Computer and Information Engineering Advisor: Prof. Chenye Wu	Sep. 2022 - Jul. 2024 (expected) GPA: 3.87/4.00
Xidian University B.E. in Software Engineering	Sep. 2018 - Jun. 2022 GPA: 3.70/4.00

PUBLICATIONS

Journal Articles

1. **Jinhao Liang**, Wenqian Jiang, Chenbei Lu and Chenye Wu, “Joint Chance-constrained Unit Commitment: Statistically Feasible Robust Optimization with Learning-to-Optimize Acceleration.” accepted by *IEEE Transactions on Power Systems*, 2024
2. Chenbei Lu, **Jinhao Liang**, Nan Gu, Haoxiang Wang and Chenye Wu, “Manipulation-Proof Virtual Bidding Mechanism Design.” accepted by *IEEE Transactions on Energy Markets, Policy and Regulation*, 2023.
3. Chenbei Lu, **Jinhao Liang**, Wenqian Jiang, Jiaye Teng and Chenye Wu, “High-Resolution Probabilistic Load Forecasting: A Learning Ensemble Approach.” accepted by *Journal of the Franklin Institute*, 2023

Conference Proceedings

1. **Jinhao Liang**, Chenbei Lu, Wenqian Jiang and Chenye Wu, “Few-shot Residential Load Forecasting Boosted by Learning to Ensemble.” accepted by *the 7th IEEE Conference on Energy Internet and Energy System Integration (EI²)*, 2023
2. Wenqian Jiang, **Jinhao Liang**, Chenbei Lu and Chenye Wu, “Robust Online EV Charging Scheduling with Statistical Feasibility.” accepted by *the 62nd IEEE Conference on Decision and Control (CDC)*, 2023
3. **Jinhao Liang**, Wenqian Jiang and Chenye Wu, “Effective Carbon Tax Learning via Cap and Trade.” accepted by *IEEE 5th International Electrical and Energy Conference (CIEEC)*, 2022

SELECTED RESEARCH EXPERIENCE

Joint Chance-constrained Unit Commitment with Statistical Feasibility Supervisor: Prof. Chenye Wu	Oct. 2022 - Jun. 2023
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- Extended the notion of statistical feasibility into unit commitment, a mixed-integer problem, and formulated the statistically feasible unit commitment.
- Developed sample-based uncertainty set construction algorithms, yielding less conservative solutions.
- Accelerated the solving process from a learning-to-optimize perspective and designed the optimization kernel to boost its computational efficiency further.

A Learning Ensemble Approach for Probabilistic Load Forecasting

Supervisor: Prof. Chenye Wu

Jun. 2022 - Jul. 2023

- Proposed the learning ensemble framework, which can capture the optimal nonlinear combination of different single models.
- Developed the clustering-based few-shot learning methods to augment the data if data is limited.
- Demonstrated the performance guarantee of learning ensemble framework and clustering-based few-shot learning methods.

SELECTED HONORS

Modern Chinese Scientists Scholarship (top 12 in Xidian University)

Jan. 2022

National Scholarship (2% in Xidian University)

Dec. 2021

SKILLS

Programming Languages and Frameworks

Python, Pytorch, MATLAB

Languages

Chinese: native; English: professional working proficiency