JINHAO LIANG

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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 Sep. 2022 - Jul. 2024 (expected)
M.Phil in Computer and Information Engineering GPA: 3.87/4.00
Advisor: Prof. Chenye Wu

Xidian University Sep. 2018 - Jun. 2022
B.E. in Software Engineering 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." revision submitted to ***IEEE Transactions on Power Systems***, 2023
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 (EI^2)*** , 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
Supervior: Prof. Chenye Wu Oct. 2022 - Jun. 2023

- 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
Supervior: 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