

Enming Liang

✉ +852-54958047 | @ eliang4@cityu.edu.hk

G Google Scholar | P Personal Webpage | L LinkedIn

Updated: 2025-12-8

RESEARCH INTERESTS

Machine Learning, Optimization Theory, and Generative Models,
Applications in Sustainable Energy and Transportation Systems.

EDUCATION

City University of Hong Kong

Ph.D. | Department of Data Science

Advisor: Prof. Minghua Chen

Hong Kong

2021/09 – 2024/11

- Thesis: ML for Constrained Optimization: Solution Feasibility and Multi-valued Mapping

Sun Yat-sen University

B.Eng. | School of Intelligent Systems Engineering

Advisor: Prof. Renxin Zhong

Guangzhou

2016/09 – 2020/07

- GPA: 91/100, Rank: 1/47
- Thesis: Optimal Supply and Demand Management in Ride-sourcing Platform

EMPLOYMENT

Research Assistant Professor

City University of Hong Kong | College of Computing

Hong Kong

2025/01 – Present

SELECTED AWARDS & HONORS

Outstanding Short Paper Award ICLR 2025 DeLTa workshop	2025
Top Reviewer Award NeurIPS	2024 & 2025
Outstanding Academic Performance Award CityU HK	2023
Research Tuition Scholarship CityU HK	2022 & 2023
Excellence Award in <i>Star of Tomorrow Internship Program</i> Microsoft Research Asia	2022
Outstanding Undergraduate Thesis Award (Top 5%) SYSU	2020
National Scholarship (Top 1%) Ministry of Education, China	2020
ACM KDD Cup: Learning to Dispatch and Reposition on a MoD Platform ▷ Top 2 Winner (0.1%)	2020
Huawei & ICAPS: Dynamic Pickup and Delivery Problem Competition ▷ Silver Prize (0.2%)	2021
MeiTuan 1st Low-Altitude Economy Flight Management Challenge ▷ Silver Prize (1%)	2024

WORKING MANUSCRIPTS

*: Co-first; †: Co-corresponding

- ▷ Enming Liang, Minghua Chen, Srinivasan Keshav. *European Electricity Grids May Exhibit Heatwave-induced Capacity Bottlenecks*. **Under submission**. 2025.
- ▷ Xinpeng Li, Enming Liang[†], Minghua Chen[†]. *Gauge Flow Matching: Efficient Constrained Generative Modeling over General Convex Set and Beyond*. **Under review**. 2026.
- ▷ Ruizhe Li, Enming Liang[†], Minghua Chen[†]. *On the Expressiveness and Complexity of Graph Neural Network for Solving Second-Order Cone Programs*. **Under review**. 2026.
- ▷ Chenghao Liu, Enming Liang[†], Minghua Chen[†]. *Hom-PGD⁺: Homeomorphic Reformulation for Efficient Optimization over Non-convex Set*. **Under review**. 2026.
- ▷ Jiawei Zhao, Min Zhou, Enming Liang, Minghua Chen. *DeepPF: Learning to Generate High-Voltage AC-PF Solution with Equality Guarantee at Internal Buses*. **Under review**. 2026.

CONFERENCE PAPERS

*: Co-first; †: Co-corresponding

- ▷ Chenghao Liu, Enming Liang[†], Minghua Chen[†]. *Fast Projection-Free Approach (without Optimization Oracles) for Optimization over Compact Convex Set*. In Proceedings of The Thirty-Ninth Annual Conference on Neural Information Processing Systems (**NeurIPS 2025**) | **Spotlight** (Top 3.2% of 21,575 submitted papers).
- ▷ Enming Liang, Minghua Chen. *Efficient Bisection Projection to Ensure NN Solution Feasibility for Optimization over General Set*. In Proceedings of the Forty-second International Conference on Machine Learning (**ICML'2025**).
- ▷ Jiaqi Yang*, Enming Liang*, Zicheng Su, Zhichao Zou, Zhen Peng, Jiecheng Guo, Kun An, Wanjing Ma. *DFF: Decision-Focused Fine-tuning for Smarter Predict-then-Optimize with Limited Data*. In Proceedings of the AAAI Conference on Artificial Intelligence (**AAAI'2025**) | **Oral** (Top 4.6% of 12,957 submitted papers).
- ▷ Chenghao Liu, Enming Liang, Minghua Chen. *Characterizing ResNet's Universal Approximation Capability*. In Proceedings of the Forty-first International Conference on Machine Learning (**ICML'2024**).
- ▷ Enming Liang, Minghua Chen. *Generative Learning for Solving Non-Convex Problem with Multi-Valued Input-Solution Mapping*. In Proceedings of the Twelfth International Conference on Learning Representations (**ICLR'2024**).
- ▷ Enming Liang, Minghua Chen, Steven H. Low. *Low Complexity Homeomorphic Projection to Ensure NN Solution Feasibility for Optimization over (Non-)Convex Set*. In Proceedings of the Fortieth International Conference on Machine Learning (**ICML'2023**).
- ▷ Enming Liang, Zicheng Su, Chilin Fang, Renxin Zhong. *OAM: an Option-Action Reinforcement Learning Framework for Universal Multi-Intersection Control*. In Proceedings of the AAAI Conference on Artificial Intelligence (**AAAI'2022**) | **Oral** (Top 5.5% from 9020 submitted papers).

WORKSHOP PAPERS

*: Co-first; †: Co-corresponding

- ▷ Ruizhe Li, Enming Liang[†], Minghua Chen[†]. *On the Expressiveness of Graph Neural Network for Solving Second-Order Cone Programming*. **NeurIPS 2025 Workshop** on GPU-Accelerated and Scalable Optimization (ScaleOpt).
- ▷ Enming Liang^{*}, Min Zhou^{*}, Jiawei Zhao, Minghua Chen. *Solving Chance-Constrained AC-OPF Problems by Neural Network with Bisection-based Projection*. **ACM E-energy 2025 EnergySP workshop**.
- ▷ Xinpeng Li^{*}, Enming Liang^{*}, Minghua Chen. *Gauge Flow Matching for Efficient Constrained Generative Modeling over General Convex Set*. **ICLR 2025 Workshop** on Deep Generative Model in Machine Learning: Theory, Principle and Efficacy (DeLTA) | **Outstanding Short Paper Award**.

JOURNAL ARTICLES

*: Co-first; †: Co-corresponding

- ▷ Min Zhou, Enming Liang[†], Minghua Chen[†], Steven Low. *Partially Permutation-Invariant Neural Network for Solving Two-Stage Stochastic AC-OPF Problem*. IEEE Transactions on Power Systems (**TPWRS**). 2025.
- ▷ Enming Liang, Minghua Chen, Steven H. Low. *Homeomorphic Projection to Ensure Neural-Network Solution Feasibility for Constrained Optimization*. Journal of Machine Learning Research (**JMLR**). 2024
- ▷ Zicheng Su, Andy H.F. Chow, Chilin Fang, Enming Liang, Renxin Zhong. *Hierarchical Control for Stochastic Network Traffic with Reinforcement Learning*. Transportation Research Part B: Methodological (**TRB**). 2023.
- ▷ Enming Liang, Kexin Wen, William H.K. Lam, Agachai Sumalee, Renxin Zhong. *An Integrated Reinforcement Learning and Centralized Programming Approach for Online Taxi Dispatching*. IEEE Transactions on Neural Networks and Learning Systems (**IEEE TNNLS**). 2021.
- ▷ Andy H.F. Chow, Zicheng Su, Enming Liang, Renxin Zhong. *Adaptive Signal Control for Bus Service Reliability with Connected Vehicle Technology via Reinforcement Learning*. Transportation Research Part C: Emerging Technologies (**TRC**). 2021.
- ▷ Zicheng Su, Andy H.F. Chow, Nan Zheng, Yunping Huang, Enming Liang, Renxin Zhong. *Neuro-Dynamic Programming for Optimal Control of Macroscopic Fundamental Diagram Systems*. Transportation Research Part C: Emerging Technologies (**TRC**). 2020.

TALKS & PRESENTATIONS

►: Invited

- Homeomorphic Methods for Efficient Learning and Optimization with Hard Constraints in *Physics-Informed Learning for Optimization and Control of Energy Systems Workshop* 30-min Invited Highlight Talk | ACM e-Energy 2026 | Banff, Canada, May 2026
- Homeomorphic Projection to Ensure NN Solution Feasibility for Constrained Optimization. The 3rd HK-SIAM Biennial Conference | Hong Kong, July 2025
- Solving Chance-Constrained ACOPF with Neural Networks and Bisection-based Projection. EnergySP Workshop | ACM e-Energy 2025 | Rotterdam, June 2025

- ▷ Gauge Flow Matching for Efficient Constrained Generative Modeling.
ICLR 2025 DeLTa Workshop | Singapore, April 2025

STUDENT MENTORSHIP

Xinpeng Li | Phd Student | City University of Hong Kong 2024 - Present

- Xinpeng Li*, Enming Liang*, Minghua Chen. *Gauge Flow Matching for Efficient Constrained Generative Modeling over General Convex Set*. **ICLR 2025 DeLTa workshop** | **Outstanding Short Paper Award**.
- Xinpeng Li, Enming Liang†, Minghua Chen†. *Gauge Flow Matching: Efficient Constrained Generative Modeling over General Convex Set and Beyond*. **Under review**. 2026.

Ruizhe Li | Undergraduate RA | Southern University of Science and Technology 2025 - Present

- Ruizhe Li, Enming Liang†, Minghua Chen†. *On the Expressiveness of Graph Neural Network for Solving Second-Order Cone Programming*. **NeurIPS 2025 ScaleOPT workshop**.
- Ruizhe Li, Enming Liang†, Minghua Chen†. *On the Expressiveness and Complexity of Graph Neural Network for Solving Second-Order Cone Programs*. **Under review**. 2026.

Jiaqi Yang | Master Student | Tongji University 2024 - 2025

- Jiaqi Yang*, Enming Liang*, Zicheng Su, Zhichao Zou, Zhen Peng, Jiecheng Guo, Kun An, Wanjing Ma. *Decision-Focused Fine-tuning for Smarter Predict-then-Optimize with Limited Data*. **AAAI 2025** | **Oral**.

Hongruifeng Xiong | Incoming Phd Student | University of Hong Kong 2025 - Present

- Survey on Machine Learning with Hard Constraints.

PROFESSIONAL EXPERIENCE

Cambridge University Cambridge
Visiting Student | Advisor: Prof. Srinivasan Keshav
2024/05 – 2024/06

- Resilience of European Transmission Grid under Extreme Weather

Microsoft Research Asia Beijing
Research Intern | Advisor: Dr. Li Zhao & Dr. Lei Song
2022/05 – 2022/09

- Data-Driven Optimization for Vehicle Routing Problem
- Multi-Agent Resource Optimization (MARO) platform

Huawei Noah's Ark Lab Shenzhen
Research Intern | Advisor: Dr. Zhitang Chen & Dr. Jie Chuai
2020/10 – 2021/04

- Collaborative Optimization for Large-scale 4G LTE Cell Networks
- Scenario-based Optimization for High-Dimension 5G RF Parameters

Didi Chuxing & SYSU Research Cooperation Program Guangzhou
Research Assistant | Advisor: Prof. Renxin Zhong
2018/11 – 2020/05

- A Multi-Agent Reinforcement Learning Approach for Online Vehicle Dispatching
- Dynamic Spatial-Temporal Pricing for Supply-demand Regulations of Ride-sourcing Market

Guangdong Key Laboratory of Intelligent Transportation Systems Guangzhou
Research Assistant | Advisor: Prof. Renxin Zhong
2018/04 – 2018/10

- The Calibration of First-Order Macroscopic Traffic Models Using MF-CEM

TEACHING ACTIVITIES

Instructor City University of Hong Kong	2025 - Present
• 2025/26 Semester B SDSC3060 Operations Research	
Teaching Assistant City University of Hong Kong	2021-2024
• 2021/22 Semester B SDSC3060 Operations Research	
• 2022/23 Semester A SDSC3019 Intro to Networked Life & DS	
• 2022/23 Semester B SDSC6014 Networked Life & Data Science	
• 2023/24 Semester B SDSC6014 Networked Life & Data Science	

ACADEMIC ACTIVITIES

Program Committee Member	2025
• ACM International Conference on Future Energy Systems (ACM e-Energy) 2026 TPC Member	
Tutorial Contributor	2024
• AI for Optimal Power Flow Tutorial (2024 Version). <u>Enming Liang</u> (Advising comments from Prof. Priya L. Donti (MIT) and Prof. Minghua Chen (CityU, HK).) Climate Change AI Summer School 2024.	
Conference Reviewer	2023-2025
• International Conference on Machine Learning (ICML) 2025	
• International Conference on Learning Representations (ICLR) 2025/2026	
• Conference on Neural Information Processing Systems (NeurIPS) 2024/2025	
• Annual AAAI Conference on Artificial Intelligence (AAAI) 2023/2024/2025/2026	
• International Conference on Artificial Intelligence and Statistics (AISTATS) 2025	
Journal Reviewer	2023-2025
• IEEE Transactions on Smart Grid	
• IEEE Power Engineering Letters	
• Transportation Research Part E	
• Transportmetrica B: Transport Dynamics	
• Neural Computing	
• Transaction on Machine Learning Research	