Xudong Liao

xudong.liao.cs@gmail.com
xudongliao.github.io
github.com/xudongliao

Education

2020.9 - present **Hong Kong University of Science and Technology**, *Doctor of Philosophy*, Computer Science and Engineering
- Advisor: Prof. Kai Chen

2016.9 - 2020.6 **Wuhan University**, *Bachelor in Engineering*, Software Engineering
- Advisor: Prof. Yanjiao Chen
- **Outstanding Graduate**

Research Interests

- Machine learning systems
- Optical networks
- Congestion control
- Datacenter networking

Publications

* denotes equal contribution.

Preprints

[1] **Xudong Liao**, Yijun Sun, Han Tian, Xinchen Wan, Yilun Jin, Zilong Wang, Zhenghang Ren, Xinyang Huang, Wenxue Li, Kin Fai Tse, Zhizhen Zhong, Guyue Liu, Ying Zhang, Xiaofeng Ye, Yiming Zhang, and Kai Chen. mFabric: An Efficient and Scalable Fabric for Mixture-of-Experts Training. *arXiv:2501.03905*, 2025. URL: `https://arxiv.org/abs/2501.03905`.

Conference Proceedings

[1] Han Tian, **Xudong Liao**, Decang Sun, Chaoliang Zeng, Yilun Jin, Junxue Zhang, Xinchen Wan, Zilong Wang, Yong Wang, and Kai Chen. Achieving Fairness Generalizability for Learning-based Congestion Control with Jury. In *ACM EuroSys*, 2025.

[2] Xinchen Wan, Luyang Li, Han Tian, **Xudong Liao**, Xinyang Huang, Chaoliang Zeng, Zilong Wang, Xinyu Yang, Ke Cheng, Qingsong Ning, Guyue Liu, Layong Luo, and Kai Chen. A Generic and Efficient Communication Framework for Message-level In-Network Computing. In *IEEE INFOCOM*, 2025.

[3] Kaiqiang Xu, Decang Sun, Hao Wang, Zhenghang Ren, Xinchen Wan, **Xudong Liao**, Zilong Wang, Junxue Zhang, and Kai Chen. Design and Operation of Shared Machine Learning Clusters on Campus. In *ACM ASPLOS*, 2025.

[4] **Xudong Liao***, Han Tian*, Chaoliang Zeng, Xinchen Wan, and Kai Chen. Astraea: Towards Fair and Efficient Learning-based Congestion Control. In *ACM EuroSys*, 2024.

[5] Chaoliang Zeng*, **Xudong Liao***, Xiaodian Cheng, Han Tian, Xinchen Wan, Hao Wang, and Kai Chen. Accelerating Neural Recommendation Training with Embedding Scheduling. In *USENIX NSDI*, 2024.

[6] Xinchen Wan, Kaiqiang Xu, **Xudong Liao**, Yilun Jin, Kai Chen, and Xin Jin. Scalable and Efficient Full-Graph GNN Training for Large Graphs. In *ACM SIGMOD*, 2023.

[7] Yiqing Ma, Han Tian, **Xudong Liao**, Junxue Zhang, Weiyan Wang, Kai Chen, and Xin Jin. Multi-Objective Congestion Control. In *ACM EuroSys*, 2022.

[8] Han Tian*, **Xudong Liao***, Chaoliang Zeng, Junxue Zhang, and Kai Chen. Spine: An Efficient DRL-Based Congestion Control with Ultra-Low Overhead. In *ACM CoNEXT*, 2022.

Journal Articles

[1] Han Tian*, **Xudong Liao***, Chaoliang Zeng, Decang Sun, Jie Zhang, and Kai Chen. Efficient DRL-Based Congestion Control With Ultra-Low Overhead. *IEEE/ACM Transactions on Networking*, Dec. 2023.

[2] Kaiqiang Xu, Xinchen Wan, Hao Wang, Zhenghang Ren, **Xudong Liao**, Decang Sun, Chaoliang Zeng, and Kai Chen. Tacc: A full-stack cloud computing infrastructure for machine learning tasks. *arXiv preprint arXiv:2110.01556*, 2021.

Books and Chapters

[1] Li Chen, Justinas Lingys, Kai Chen, and **Xudong Liao**. *Datacenter Traffic Optimization with Deep Reinforcement Learning*. In *Communication Networks and Service Management in the Era of Artificial Intelligence and Machine Learning*. John Wiley & Sons, Ltd, 2021. Chapter 10, pages 223–259. ISBN: 9781119675525. DOI: https://doi.org/10.1002/9781119675525.ch10.

Awards

2024	NSDI 2024 Travel Grant	*USENIX Association*
2024	EuroSys 2024 Travel Grant	*ACM*
2020-2024	Postgraduate Studentship	*HKUST*
2020.6	Outstanding Graduate	*Wuhan University*
2019	Second-class Scholarship	*Wuhan University*
2018	Second-class Scholarship	*Wuhan University*
2017	Second-class Scholarship	*Wuhan University*

Professional Experience

2025	Reviewer of IEEE/ACM Transactions on Networking
2025	NSDI'25 Review Helper
2023	Web chair of 7th Asia-Pacific Workshop on Networking (APNet'23)
2022	CoNEXT'22 Review Helper
2022	APNet'22 Review Helper
2021	INFOCOM'22 Review Helper

Teaching Experience

2023 Spring	Teaching Assistant of HKUST COMP2611 Computer Organization
2023 Spring	Teaching Assistant of HKUST COMP3511 Operating System
2022 Spring	Teaching Assistant of HKUST COMP3511 Operating System
2021 Spring	Teaching Assistant of HKUST COMP3511 Operating System

Skills

Languages	Mandarin Chinese (native), English
Programming	C/C++, Python, LaTeX, Bash scripts, RDMA verbs