Xinchen Wan

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Education

2018.9 - 2025.2 **Hong Kong University of Science and Technology**, *Ph.D.*, Computer Science & Engineering
- Advisor: Prof. Kai Chen
- Thesis: *Towards Communication-Efficient Distributed Training Systems*

2014.9 - 2018.6 **Huazhong University of Science and Technology**, *BEng.*, Computer Science & Technology
- Advisor: Prof. Song Wu

Research Interests

- Machine Learning Systems
- Hardware Acceleration
- Datacenter Networking

Industrial Experiences

Jun 2025 - Present — Network Engineer & Researcher, High Speed Network Group — *ByteDance, Seattle*

Working on building next-generation AI network.

Nov 2021 - Aug 2023 — Research Intern, Hardware Acceleration Group — *ByteDance, Beijing*

Worked with Dr. Layong Luo. Design an RDMA-based AI Interconnect network, and a generic and efficient platform for Message-level In-Network Computing.

Publications

Conference Proceedings

[1] Luyang Li, Heng Pan, **Xinchen Wan**, Kai Lv, Zilong Wang, Qian Zhao, Feng Ning, Qingsong Ning, Shideng Zhang, Zhenyu Li, Layong Luo, and Gaogang Xie. Harmonia: a unified framework for heterogeneous fpga acceleration in the cloud. In *Proceedings of the 30th ACM International Conference on Architectural Support for Programming Languages and Operating Systems*, ASPLOS, 2025.

[2] Xudong Liao, Han Tian, **Xinchen Wan**, Chaoliang Zeng, Hao Wang, Junxue Zhang, Mengyu Ma, Guyue Liu, and Kai Chen. Towards optimal rack-scale μs-level cpu scheduling through in-network workload shaping. In *Proceedings of USENIX Annual Technical Conference*, ATC, 2025.

[3] 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 *Proceedings of the 20th ACM European Conference on Computer Systems*, EuroSys, 2025.

[4] **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 *Proceedings of the IEEE International Conference on Computer Communications*, INFOCOM, 2025.

[5] 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 *Proceedings of the 30th ACM International Conference on Architectural Support for Programming Languages and Operating Systems*, ASPLOS, 2025.

[6] Xudong Liao, Han Tian, Chaoliang Zeng, **Xinchen Wan**, and Kai Chen. Astraea: towards fair and efficient learning-based congestion control. In *Proceedings of the 19th ACM European Conference on Computer Systems*, EuroSys, 2024.

[7] Hao Wang, Han Tian, Jingrong Chen, **Xinchen Wan**, Jiacheng Xia, Gaoxiong Zeng, Wei Bai, Junchen Jiang, Yong Wang, and Kai Chen. Towards domain-specific network transport for distributed dnn training. In *Proceedings of the 21st USENIX Symposium on Networked Systems Design and Implementation*, NSDI, 2024.

[8] Zilong Wang, **Xinchen Wan**, Luyang Li, Yijun Sun, Peng Xie, Xin Wei, Qingsong Ning, Junxue Zhang, and Kai Chen. Fast, scalable, and accurate rate limiter for rdma nics. In *Proceedings of the ACM Special Interest Group on Data Communication*, SIGCOMM, 2024.

[9] Chaoliang Zeng, Xudong Liao, Xiaodian Cheng, Han Tian, **Xinchen Wan**, Hao Wang, and Kai Chen. Accelerating neural recommendation training with embedding scheduling. In *Proceedings of the 21st USENIX Symposium on Networked Systems Design and Implementation*, NSDI, 2024.

[10] **Xinchen Wan**, Kaiqiang Xu, Xudong Liao, Yilun Jin, Kai Chen, and Xin Jin. Scalable and efficient full-graph gnn training for large graphs. In *Proceedings of the ACM on Management of Data*, SIGMOD, 2023.

[11] Zilong Wang, Layong Luo, Qingsong Ning, Chaoliang Zeng, Wenxue Li, **Xinchen Wan**, Peng Xie, Tao Feng, Ke Cheng, Xiongfei Geng, et al. Srnic: a scalable architecture for rdma nics. In *Proceedings of the 20th USENIX Symposium on Networked Systems Design and Implementation*, NSDI, 2023.

[12] Zilong Wang, **Xinchen Wan**, Chaoliang Zeng, and Kai Chen. Accurate and scalable rate limiter for rdma nics. In *Proceedings of the 7th Asia-Pacific Workshop on Networking*, APNet, 2023.

[13] **Xinchen Wan**, Kai Chen, and Yiming Zhang. Dgs: communication-efficient graph sampling for distributed gnn training. In *Proceedings of the 30th IEEE International Conference on Network Protocols*, ICNP, 2022.

[14] **Xinchen Wan**, Hong Zhang, Hao Wang, Shuihai Hu, Junxue Zhang, and Kai Chen. Rat-resilient allreduce tree for distributed machine learning. In *Proceedings of the 4th Asia-Pacific Workshop on Networking*, APNet, 2020.

Journal Articles

[1] 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.

[2] Hao Wang, Jingrong Chen, **Xinchen Wan**, Han Tian, Jiacheng Xia, Gaoxiong Zeng, Weiyan Wang, Kai Chen, Wei Bai, and Junchen Jiang. Domain-specific communication optimization for distributed dnn training. *arXiv preprint arXiv:2008.08445*, 2020.

Academic Services

2025 IEEE/ACM Transactions on Networking (ToN) reviewer

2022 IEEE Transactions on Computers (TC) reviewer

Awards

2018-2025	Postgraduate Student Scholarship	*HKUST*
2017	Chinese National Scholarship	*Ministry of Education*
2016	Learning Excellence Scholarship (Top 2 students in CS department)	*HUST*
2015	Outstanding Student Cadres Scholarship	*HUST*

Talks

2023	Scalable and Efficient Full-Graph GNN Training for Large Graphs	*Seattle, USA*
2022	DGS: Communication-Efficient Graph Sampling for Distributed GNN Training	*Online*
2020	Rat-resilient allreduce tree for distributed DNN training	*Online*

Teaching Experiences

2019 Fall - 2021 Spring	Teaching Assistant Coordinator at HKUST CSE
2019 Spring	Teaching Assistant of HKUST COMP1022Q Excel VBA

Skills

Language	Mandarin Chinese (native), English (proficiency)
Programming	C/C++, Python, Go, LaTeX, Bash scripts