Xinchen Wan

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PROFILE

I am a Ph.D. candidate in Department of Computer Science and Engineering at the Hong Kong University of Science and Technology (HKUST), advised by Prof. Kai Chen. I received my B.E. degree in computer science from Huazhong University of Science and Technology (HUST) in 2018. My research interests focus on hardware acceleration, distributed machine learning system, and data center network. I am particularly interested in designing high-performance machine learning systems for newly emerged models, including MoE and LLMs.

EDUCATION

Hong Kong University of Science and Technology, Hong Kong SAR, China 2018 – present
Ph.D. Candidate, Computer Science and Engineering
Advisor: Prof. Kai Chen

Huazhong University of Science and Technology, Hubei, China 2014 – 2018
Bachelor of Engineering, Computer Science and Technology
Advisor: Prof. Song Wu

PUBLICATIONS

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

[2] 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 USENIX NSDI 2024.

[3] 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.

[4] **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.

[5] Zilong Wang, Layong Luo, Qingsong Ning, Chaoliang Zeng, Wenxue Li, **Xinchen Wan**, Peng Xie, Tao Feng, Ke Cheng, Xiongfei Geng, Tianhao Wang, Weicheng Ling, Kejia Huo, Pingbo An, Kui Ji, Shideng Zhang, Bin Xu, Ruiqing Feng, Tao Ding, Kai Chen, and Chuanxiong Guo. "SRNIC: A Scalable Architecture for RDMA NICs". In USENIX NSDI 2023.

[6] Zilong Wang, **Xinchen Wan**, Chaoliang Zeng, and Kai Chen. "Accurate and Scalable Rate Limiter for RDMA NICs". In ACM APNet 2023.

[7] **Xinchen Wan**, Kai Chen, and Yiming Zhang. "DGS: Communication-Efficient Graph Sampling for Distributed GNN Training". In IEEE ICNP 2022.

[8] 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". In arXiv 2021.

[9] **Xinchen Wan**, Hong Zhang, Hao Wang, Shuihai Hu, Junxue Zhang, and Kai Chen. "RAT - Resilient Allreduce Tree for Distributed Machine Learning". In ACM APNet 2020.

[10] 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". In arXiv 2020.

INDUSTRIAL EXPERIENCES

ByteDance, Beijing, China — Nov 2021 – Aug 2023

Research Intern, Hardware Acceleration Group

- Worked with Dr. Layong Luo. Design an RDMA-based AI Interconnect network.
- Worked with Dr. Layong Luo. Design MINC (Message-level In-Network Computing) Platform, a generic and efficient platform to support diverse message-level in-network computing applications over diverse special hardware.

TALKS

[1] Scalable and Efficient Full-Graph GNN Training for Large Graphs
SIGMOD'23, Seattle, WA, USA, June 2023

[2] DGS: Communication-Efficient Graph Sampling for Distributed GNN Training
ICNP'22, Online, Nov 2022

[3] Rat-resilient allreduce tree for distributed DNN training
APNet'20, Online, Aug 2020

TEACHING

Teaching Assistant Coordinator at HKUST CSE — Fall 2019 – Spring 2021
Teaching Assistant of COMP1022Q at HKUST — Spring 2019

AWARDS

Research Postgraduate Scholarship, HKUST — 2018 – present
Chinese National Scholarship, Ministry of Education — 2017
Learning Excellence Scholarship (Top 2 students in CS department), HUST — 2016
Outstanding Student Cadres Scholarship, HUST — 2015

SKILLS

Programming — C/C++, Python, Go, C#
Language — Chinese (native), English (professional working proficiency)

Last updated: February 16, 2024