
ME

Third-year PhD candidate at Harvard University advised by Professors Minlan Yu and Aditya Akella. My research interests include networked systems, machine learning systems, and programmable hardware. My thesis focuses on designing efficient machine learning training and inference systems considering better networking support.

EDUCATION

Harvard University, Boston (advised by Prof. Minlan Yu and Prof. Aditya Akella) 2021 - Present
PhD of Computer Science, Year 3

Tsinghua University, Beijing (advised by Prof. Wenfei Wu) 2018 - 2021
Master of Computer Science

Outstanding Graduates, 78 of 5650 $\approx 1.38\%$

Outstanding Thesis Award, “ATP: In-network Aggregation for Multi-tenant Learning”

National Cheng Kung University, Taiwan 2015 - 2018
Bachelor of Computer Science & Information Engineering

2nd place Outstanding Graduation Project

GPA 3.91/4.3, Top 10% ranking

WORK & RESEARCH EXPERIENCES

Student Researcher @ Google, remote MA Sep 2022 - Present
Conducting research on multipathing solutions for RDMA NIC (Falcon).

Research Assistant @ Harvard University, MA Sep 2022 - Present
Building hierarchical machine learning inference system with FPGA middleboxes. The goals are to provide better latency and service quality for client inference services, and reduce the data center cost with the deployment.

Research Intern @ Google, Sunnyvale CA Jun 2022 - Sep 2022
Investigated accelerating multi-tenant distributed training by network scheduling.

Visiting Scholar @ University of Wisconsin–Madison, Madison WI Sep 2019 - Feb 2020
Built an in-network aggregation service to accelerate distributed training in multi-tenant multi-rack networks with programmable switches.

Research Assistant @ The University of Hong Kong, Hong Kong S.A.R. Jun 2017 - Sep 2017
Implemented Machine Learning models to improve the accuracy of variant calling software, doing experiments and benchmarking.

PUBLICATIONS

- “ATP: In-network Aggregation for Multi-tenant Learning”, ChonLam Lao, Yanfang Le, Kshiteej Mahajan, Yixi Chen, Wenfei Wu, Aditya Akella, Michael Swift, *NSDI 2021. (Best Paper Award)*
- “A Generic Service to Provide In-network Aggregation for Key-value Streams”, Yongchao He, Wenfei Wu, Yanfang Le, Ming Liu, ChonLam Lao, *ASPLOS 2023. (Distinguished Paper Awards)*
- “THC: Accelerating Distributed Deep Learning Using Tensor Homomorphic Compression”, Minghao Li, Ran Ben Basat, Shay Vargaftik, ChonLam Lao, Kevin Xu, Xinran Tang, Michael Mitzenmacher, Minlan Yu, *NSDI 2024.*
- “In-Network Key-Value Cache with Linearizability”, Yuxuan Qin, Weize Gao, ChonLam Lao, Wenfei Wu, Kai Chen, *ICPADS 2023.*
- “Efficient Data-Plane Memory Scheduling for In-Network Aggregation”, Hao Wang, Yuxuan Qin, ChonLam Lao, Yanfang Le, Wenfei Wu, Kai Chen, *ICNP 2023.*

AWARDS AND ACHIEVEMENTS

Achievements

- Outstanding Graduates at Tsinghua University
- Outstanding Thesis Award at Tsinghua University
- Top 6% in 2017 Taiwan Collegiate Programming Examination
- Bronze Prize of 2017 ACM-ICPC Asia Taiwan Regional Contest

- Silver Reward of 2014 Macao Olympiad in Informatics (MOI)
- Second Prize of 2013 National Olympiad in Informatics in Province (NOIP)
- Silver Reward of 2013 Macao Olympiad in Informatics (MOI)
- Second Prize of 2012 National Olympiad in Informatics in Province (NOIP)
- Silver Reward of 2012 Macao Olympiad in Informatics (MOI)

Awards

- The Baogang Scholarship (2020 - 2021)
- First price of Tsinghua University Scholarship MO/HK/TW (2018 - 2020)
- Macau Government Scholarship for Master Student (2018 - 2020)
- Taiwan Government Scholarship for Oversea Student (2015 - 2018)
- Macau Government Scholarship (2015 - 2018)

PROFESSIONAL SERVICES

- IEEE/ACM Transactions on Networking (TON) reviewer
- NSDI'22 external reviewer

PATENTS

- Wenfei Wu, **ChonLam Lao**, Yixi Chen. Distributed task processing method and system. CN Patent Application CN114546633A, filed December 2020. Patent Pending.
- Wenfei Wu, **ChonLam Lao**, Yixi Chen. Distributed task processing method and system and storage medium. CN Patent Application CN114553879A, filed December 2020. Patent Pending.
- Wenfei Wu, **ChonLam Lao**, Yixi Chen. Distributed task exception handling method and system. CN Patent Application CN114553880A, filed December 2020. Patent Pending.

TEACHING EXPERIENCES

- Security Technologies in Cyberspace, Tsinghua University, 2018
- Advanced Competitive Programming, National Cheng Kung University 2017, CSIE7557

OTHER LINKS

- Github - <https://github.com/laochonlam>
- Personal website - <https://laochanlam.com/>