Weiyang Wang (Frank)

Education

Massachusetts Institute of Technology, Cambridge, MA

Jun 2025 Ph.D Computer Science

Advisor: Manya Ghobadi

- Sep 2022 M.S. Computer Science Advisor: Manya Ghobadi
 - University of California, San Diego, La Jolla, CA
- Jun 2020 B.S. Computer Science, Honors With Highest Distinction Advisor: Alex C. Snoeren
- Jun 2020 B.S. Physics Minor in Mathematics

Research Experience

- Sep 2020 Research Assistant, MIT CSAIL, Optimizing Network Infrastructure for Datacenter Applications Now Advisor: Manya Ghobadi
- Jan 2019 Research Assistant, UCSD CSE Dept., Harnessing Dynamic Datacenter Fabrics with TDTCP Jun 2020 Advisor: Alex C. Snoeren
- Jun 2018 **Undergraduate Researcher**, *UCSD CSE Dept.*, Frontend SQL++ query engine implementation Sep 2018 Mentor: Yannis Papakonstantinou
- Feb 2017 Software Engineer, Center of Astrophysics and Space Science, UCSD, Instrument controller
 Jun 2018 software implementation for the POLARBEAR-2 project
 Mentors: Praween Siritanasak, Alex Zahn, and Brian Keating

Industry Experience

- May 2024 **Research Intern**, *Microsoft Research*, Improving Speed and Robustness of Distributed Applications Aug 2024 Mentor: Srikanth Kandula
- Jun 2023 **Research Intern**, *Google Cloud*, Topology Engineering and Traffic Engineering under Uncertainty Aug 2023 Mentor: Anny Xijia Zheng

Publications

Optimal Direct-Connect Topologies for Collective Communications, Liangyu Zhao, Siddharth Pal, Tapan Chugh, Weiyang Wang, Prithwish Basu, Joud Khoury, Arvind Krishnamurthy, *Proceedings* of the 22nd USENIX Symposium on Networked Systems Design and Implementation (NSDI), Philadelphia, PA, April 2025

Rail-only: A Low-Cost High-Performance Network for Training LLMs with Trillion Parameters, Weiyang Wang, Manya Ghobadi, Kayvon Shakeri, Ying Zhang, Naader Hasani, *Proceedings of IEEE Symposium on High-Performance Interconnects (HOTI), Online Conference, August 2024*

TopoOpt: Co-optimizing Network Topology and Parallelization Strategy for Distributed Training Jobs, Weiyang Wang, Moein Khazraee, Zhizhen Zhong, Zhijao Jia, Dheevatsa Mudigere, Ying Zhang, Anthony Kewitsch, and Manya Ghobadi, *Proceedings of the 20th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, Boston, MA, April 2023 Time-division TCP for Reconfigurable Data Center Networks, Shawn Shuoshuo Chen*, Weiyang Wang*, Christopher Canel, Srinivasan Seshan, Alex C. Snoeren, Peter Steenkiste, *Proceedings of the ACM SIGCOMM 2022, Amsterdam, Netherlands, August 2022*

IOI: In-network Optical Inference, Zhizhen Zhong, Weiyang Wang, Manya Ghobadi, Alexander Sludds, Ryan Hamerly, Liane Bernstein, Dirk Englund, *Proceedings of the ACM SIGCOMM 2021 Workshop on Optical Systems (OptSys), Online Conference, August 2021*

Adapting TCP for Reconfigurable Datacenter Networks, Matthew Mukerjee, Christopher Canel, Weiyang Wang, Daehyeok Kim, Srinivasan Seshan, and Alex C. Snoeren, *Proceedings of the 17th USENIX Symposium on Networked Systems Design and Implementation (NSDI), Santa Clara, CA, February 2020*

Poster

Zero Buffer Optical Packet Switching Data Center Network, Shawn Shuoshuo Chen, Weiyang Wang, Manya Ghobadi, Srinivasan Seshan, Peter Steenkiste, Poster Session at the 21st USENIX Symposium on Networked Systems Design and Implementation (NSDI), Santa Clara, CA, April 2024

Patent

Jul 2024 In-network Optical Inference, Manya Ghobadi, Zhizhen Zhong, Weiyang Wang, Liane Sarah Beland Bernstein, Alexander Sludds, Ryan Hamerly, Dirk Robert Englund, US Patent Application Number 18561985

Awards

- Feb 2022 Finalist, Meta PhD Research Fellowship Program in Computer Networks
- Sep 2020 Awardee, MIT Presidential Fellowship Award
- Jun 2020 Awards of Excellence, UCSD Jacobs School of Engineering, Award for Excellence in Computer Science and Engineering
- Dec 2019 Runners-Up, CRA Outstanding Undergraduate Researcher Awards
- Dec 2018 Winner, UCSD CSE Dept., Computer Networking Espresso Prize
- Dec 2016 Provost Honors, UCSD
- Jun 2020

Service

- Sep 2020 **System Administrator**, *HiperSys Research Group*, *MIT CSAIL* Now Constructed and managed a 24-node GPU cluster, with electrical and optical networking, from scratch
- Sep 2022 Web Chair, Sidney-Pacific Student Government, MIT
- Now Served as Web Chairs to maintain and develop the administration system for MIT's Sidney Pacific graduate housing
- Sep 2022 Member, MIT EECS REFS
- Now Served as peer mediators to support the graduate community and serve as a first point of contact in dealing with stress
- Jan 2023 UROP Student Mentor, MIT CSAIL
- Apr 2023 Mentored an undergraduate student in MIT's Undergraduate Research Opportunities Program (UROP)
- Sep 2022 **Teaching Assistant**, *MIT CSAIL* Course: Computer Network (6.5820)
- Sep 2018 Tutor, UCSD CSE Dept.
- Mar 2020 Courses: Database Principle (CSE132A), Introduction to Programming II (CSE8B)
- Aug 2018 Visitor, The Cornell, Maryland, Max Plank Pre-doctoral research school 2018, Saarbrücken, Germany