Jiaxin Lin

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Research Interest

Computer Networks, Programmable Hardware, Cloud Computing, and Distributed Systems

Education

The University of Texas at Austin   2021–present
Ph.D. candidate in Computer Science
Advisor: Aditya Akella

University of Wisconsin–Madison   2019–2021
M.S. in Computer Science
Advisor: Aditya Akella, GPA: 4.0/4.0

Beihang University   2015–2019
B.S. in Computer Science
ShenYuan Honors College, GPA: 3.9/4.0

Professional Experience

Google, System Research Group   May 2023–Sep 2024
Student Researcher, advised by Arvind Krishnamurthy and Brent Stephens
Build high-performance host-accelerator interfaces over CXL cache coherent interconnect.

Google, NetInfra, Congestion Control Team   May 2022–Aug 2022
Research Intern, advised by Naveen Kr. Sharma and Hassan Wassel   May 2021–Aug 2021
Design the alpha carving-based resource allocator in Falcon ↗, Google's on-NIC hardware transport.
The resource allocator I designed has been adopted and is running on today's chip.

UT Austin, Internet and Systems Research Group   May 2021–present
Research Assistant, advised by Aditya Akella
Design hardware and system stacks to accelerate network for next-generation data centers.

Microsoft Research Asia, Network Research Group   Sep 2018–June 2019
Research Intern, advised by Peng Cheng and Yongqiang Xiong
Leverage FPGA to accelerate data preprocessing in deep learning tasks.
Design a streaming-based RDMA NIC to improve the hardware's connection scalability.

Honors & Awards

○ MIT EECS Rising Stars ↗   2024
○ Google Ph.D Fellowship Winner ↗   2023
○ Meta Ph.D Fellowship Winner ↗   2021
○ Professional Development Award, UT Austin   2023, 2024
○ SIGCOMM Student Travel Grant   2023
○ NSDI Student Travel Grant   2023, 2024
○ Dean's Prestigious Fellowship Supplement, UT Austin   2022
○ Bachelors Dissertation Award, Beihang University   2019
○ Mathematical Contest in Modeling, Honorable Mention   2017
○ Merit Student, Beihang University   2016–2018

Selected Publications

1. **Jiaxin Lin***, Zhiyuan Guo*, Mihir Shah, Tao Ji, Yiying Zhang, Daehyeok Kim, and Aditya Akella. Portable and high-performance smartnic programs with Alkali. In *22nd USENIX Symposium on Networked Systems Design and Implementation (NSDI 25)*, 2025

2. **Jiaxin Lin**, Kiran Patel, Brent E. Stephens, Anirudh Sivaraman, and Aditya Akella. Panic: A high-performance programmable nic for multi-tenant networks. In *14th USENIX Symposium on Operating Systems Design and Implementation (OSDI 20)*, pages 243–259, 2020

3. **Jiaxin Lin**, Adney Cardoza, Tarannum Khan, Yeonju Ro, Brent E. Stephens, Hassan Wassel, and Aditya Akella. RingLeader: Efficiently offloading Intra-Server orchestration to NICs. In *20th USENIX Symposium on Networked Systems Design and Implementation (NSDI 23)*, pages 1293–1308, 2023

4. **Jiaxin Lin**, Tao Ji, Xiangpeng Hao, Hokeun Cha, Yanfang Le, Xiangyao Yu, and Aditya Akella. Towards accelerating data intensive application's shuffle process using SmartNICs. In *Proceedings of the ACM on Measurement and Analysis of Computing Systems (SIGMETRICS 23)*, volume 7, pages 1–23, 2023

Other Publications

1. Brian Chang, Keqiang He, Shawn Chen, **Jiaxin Lin**, Mingyang Zhang, Wenfei Wu, and Aditya Akella. Balancing sdn control plane availability and traffic engineering efficiency in data centers. In *32nd IEEE International Conference on Network Protocols (ICNP 24)*, 2024

2. Zerui Guo, **Jiaxin Lin**, Yuebin Bai, Daehyeok Kim, Michael Swift, Aditya Akella, and Ming Liu. Lognic: A high-level performance model for SmartNICs. In *Proceedings of the 56th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO 23)*, pages 916–929, 2023

3. Tuopu Wen, Diange Yang, Kun Jiang, Chunlei Yu, **Jiaxin Lin**, Benny Wijaya, and Xinyu Jiao. Bridging the gap of lane detection performance between different datasets: Unified viewpoint transformation. *IEEE Transactions on Intelligent Transportation Systems (T-ITS 20)*, 22(10):6198–6207, 2020

4. Yang Cheng, Dan Li, Zhiyuan Guo, Binyao Jiang, **Jiaxin Lin**, Xi Fan, Jinkun Geng, Xinyi Yu, Wei Bai, Lei Qu, et al. Dlbooster: Boosting end-to-end deep learning workflows with offloading data preprocessing pipelines. In *Proceedings of the 48th International Conference on Parallel Processing (ICPP 19)*, pages 1–11, 2019

Invited Talks

High-Performance Programmable NICs for Multi-tenant Networks

- Hardware demo and talk at 2024 OCP Global Summit ↗, San Jose (video) ↗.   2024
- Talk at 2022 SmartNICs Summit ↗, San Jose.   2022
- Talk at 2022 FlexNet Workshop ↗, Virtual.   2022
- Talk at USENIX OSDI, Virtual (video) ↗.   2020

Efficiently Offloading Intra-Server Orchestration to NICs

- Talk at Google, System Research Group, Seattle.   2023
- Talk at New York University, Network and System Group, New York.   2023
- Talk at USENIX NSDI, Boston (video) ↗.   2023

Building SmartNIC-aware Systems for I/O-Centric Data Centers

- Guest Lecture at the University of Waterloo, Virtual.   2023
- Talk at UT Austin Turing Scholars Student Association, Austin.   2023

Towards Accelerating Data Intensive Application's Shuffle Process Using SmartNICs

- Talk at ACM SIGMETRICS, Orlando.   2023

Service & Outreach

Professional Activities
- *Transactions Reviewer*, IEEE TVLSI   2024
- *Pre-Review Task Force*, NSDI   2024
- *External Reviewer*, ATC   2024
- *External Reviewer*, ASPLOS   2023
- *Student Volunteer*, HotNets   2022

University Services
- *Teaching Assitant*, Advanced Topics in Computer Networks, UT Austin   2024
- *Graduate Admissions Student Committee*, UT Austin   2022, 2024
- *Teaching Assistant*, Computer Architecture, Beihang University   2018
- *Vice-minister*, Students' Union, Beihang University   2017