

## Education

- Sept. 2020 – **Duke University**, *Doctor of Philosophy*, Computer Science  
May. 2025 ○ Advisor: **Prof. Danyang Zhuo**
- Sept. 2018 – **Hong Kong University of Science and Technology**, *Master of Philosophy (MPhil)*, Computer Science and Engineering  
Aug. 2020 ○ Advisor: **Prof. Kai Chen**
- Sept. 2014 – **Fudan University**, *Bachelor of Science*, Honor Program, School of Computer Science  
Jun. 2018 ○ Advisor: **Prof. Yang Chen**

## Research Interests

- End-system networking
- RDMA and high-speed network
- Cloud networking
- Machine learning systems

## Publications

- [C9] Xiangfeng Zhu, Yuyao Wang, Banruo Liu, Yongtong Wu, Nikola Bojanic, **Jingrong Chen**, Gilbert Louis Bernstein, Arvind Krishnamurthy, Sam Kumar, Ratul Mahajan, and Danyang Zhuo. High-level programming for application networks. In *NSDI*, 2025
- [C8] Yongji Wu, Yechen Xu, **Jingrong Chen**, Zhaodong Wang, Ying Zhang, Matthew Lentz, and Danyang Zhuo. MCCS: A Service-based Approach to Collective Communication for Multi-Tenant Cloud. In *SIGCOMM*, 2024
- [C7] Hao Wang, Han Tian, **Jingrong Chen**, Xinchun Wan, Jiacheng Xia, Gaoxiong Zeng, Wei Bai, Junchen Jiang, Yong Wang, and Kai Chen. Towards Domain-Specific Network Transport for Distributed DNN Training. In *NSDI*, 2024
- [C6] Xiangfeng Zhu, Weixin Deng, Banruo Liu, **Jingrong Chen**, Yongji Wu, Thomas Anderson, Arvind Krishnamurthy, Ratul Mahajan, and Danyang Zhuo. Application Defined Networks. In *HotNets*, 2023
- [C5] **Jingrong Chen\***, Yongji Wu\*, Shihan Lin, Yechen Xu, Xinhao Kong, Thomas Anderson, Matthew Lentz, Xiaowei Yang, and Danyang Zhuo. Remote Procedure Call as a Managed System Service. In *NSDI*, 2023
- [C4] Xinhao Kong, **Jingrong Chen**, Wei Bai, Yechen Xu, Mahmoud Elhaddad, Shachar Raindel, Jitendra Padhye, Alvin R. Lebeck, and Danyang Zhuo. Understanding RDMA Microarchitecture Resources for Performance Isolation. In *NSDI*, 2023
- [C3] **Jingrong Chen**, Hong Zhang, Wei Zhang, Liang Luo, Jeffrey Chase, Ion Stoica, and Danyang Zhuo. NetHint: White-Box Networking for Multi-Tenant Data Centers. In *NSDI*, 2022
- [C2] Hong Zhang, Yupeng Tang, Anurag Khandelwal, **Jingrong Chen**, and Ion Stoica. Caerus: TIMELY Task Scheduling for Serverless Analytics. In *NSDI*, 2021
- [C1] Hao Zhao, Qingyuan Gong, Yang Chen, **Jingrong Chen**, Yong Li, and Xiaoming Fu. This Place Is Swarming: Using a Mobile Social App to Study Human Traffic in Cities. In *PerCom Workshops*, 2018

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## Industry Experience

- May 2025 – **Uber**, Manager: **Dr. Shi Bai**, Host Networking, CNI migration  
Present
  - Modernizing Uber's host network to improve reliability and velocity.
  - Migrating Uber's network infra to standard Kubernetes IP-Per-Pod networking model using container networking interface (CNI)
- May 2024 – **Uber**, Manager: **Dr. Hongqiang Harry Liu**, Host Networking, Network observability  
Aug. 2024
  - Delivered a PoC of network observability platform that collects and visualizes container- and service-level metrics on Uber's infra
- May 2023 – **Uber**, Manager: **Dr. Hongqiang Harry Liu**, Software Networking, Off-host service mesh  
Dec. 2023
  - Migrated assisted load balancing (ALB) from Muttley to Envoy
  - Initiated the early design and PoC of off-host service mesh
- May 2022 – **Meta**, Mentor: **Dr. Liang Luo**, AI System SW/HW Codesign, Distributed training auto parallelism  
Aug. 2022
  - Explored the design space of DHEN's performance through automated search
  - Developed a codesign toolkit for open-source DHEN based on Alpa
- Feb. 2019 – **Clustar**, Mentor: **Dr. Shuihai Hu**, Startup company, RDMA virtualization in the cloud  
Aug. 2019
  - Exploited Open vSwitch hardware offloading and a programmable data-plane in NIC for RDMA I/O virtualization
  - Designed an explicit route controller that enabled network virtualization (VXLAN) with the multi-path scenario into consideration
  - Designed an end-host based load balancer, which leveraged active probing to select the best path
  - Implemented a prototype consisting of a brain and an agent which can provision VM and allocate bandwidth on the end-host
- Mar. 2018 – **ByteDance**, Supervisor: **Dr. Chuanxiong Guo**, AI Lab, Machine learning system group  
Aug. 2018
  - Redesigned and implemented the communication part of MXNet with IBVerbs and RDMA
  - Conducted experiments to demonstrate the acceleration of MXNet over RDMA on various models (including CNNs and RNNs)
  - Worked on how to simplify verbs programming
- Jul. 2017 – **Alibaba**, Manager: **Dr. Ming Zhang**, Network Automation, Network Audit  
Sept. 2017
  - Promoted the coverage and accuracy of servers uplink data in Alibaba's network information base (NIB) database.
  - Transferred part of NIB data and the daily auditing jobs from a local relational database to Max-Compute (a big data platform, previously called ODPS)

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## Awards / Honors

- 2022 – 2023 USENIX NSDI Student Grant
- 2021 – 2022 Teaching Assistant Award
- 2021 – 2022 Research Initiation Project Award
- 2020 – 2022 Duke Computer Science PhD Fellowship
- 2018 – 2020 HKUST Postgraduate Scholarship
- Dec. 2015 The 2015 ACM-ICPC Asia Shanghai Regional Contest – **Gold Medal**
- Nov. 2015 The 2015 ACM-ICPC Asia Hefei Regional Contest – **Gold Medal**
- Nov. 2014 The 2014 ACM-ICPC Asia Guangzhou Regional Contest – **Gold Medal**
- Aug. 2013 The 2013 CCF National Olympiad in Informatics – **Bronze Medal**

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## Teaching Experience

- 2022 Spring Teaching Assistant of Duke CPS590.04 – Data Center Systems
- 2021 Fall Teaching Assistant of Duke CPS310 – Operating Systems
- 2019 Fall Teaching Assistant of HKUST COMP3511 – Operating Systems

## **Programming Skills**

I am experienced with Rust, C++, C, Python, JavaScript, Haskell, Bash, systems programming, asynchronous networking programming, RDMA verbs programming, parallel computation, and debugging distributed systems.