

Education

- Sept. 2020 – **Duke University**, *Doctor of Philosophy*, Computer Science
Present ○ 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

- [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, **Chen, Jingrong**, Yong Li, and Xiaoming Fu. This Place Is Swarming: Using a Mobile Social App to Study Human Traffic in Cities. In *PerCom Workshops*, 2018

Industry Experience

- May. 2022 – **Meta**, AI System SW/HW Codesign, Distributed training auto parallelism
Aug. 2022
- Feb. 2019 – **Clustar**, 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)

Jul. 2016 – **Nymphdata**, Startup company, Big Data Analytics

- Sept. 2016
- Developed an efficient *User-Agent* (UA) parser which can extract information about a wide range of devices, OS and browsers to characterize users more precisely from large scale telecom data
 - Implemented the UA parser based on regular expression with Python and C++. Optimized its performance, coverage and accuracy
 - Designed an algorithm which can cluster different accounts of one user
 - Implemented the algorithm with Hadoop MapReduce framework

Course Projects

NEMU A simple but complete full-system x86 emulator designed for teachings. Many x86-specific programs can run on NEMU

Cyclone Jet Rocket A DDoS tool implemented with Go language based on raw socket, providing more than 8 kinds of attack methods, with different parameters each method

Enrollment System A scalable course enrollment system backend implemented with actor model and microservices architecture, can process ~12000 requests per second on 6 VMs

AIMv6 A cross-platform operating system for teaching purposes, written in C and ran on QEMU

Dogchamber A chatroom for Computer Networks course. Re-implemented WebSocket protocol (server-side) based on TCP socket

ESSHFS An encrypted network filesystem based on sshfs, the transparent encryption was based on *Counter* mode (CTR) AES

Awards / Honors

2022 USENIX NSDI Student Grant

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**

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

Invited Talks

Jul. 2022 NetHint, Fudan University, Online

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.