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Yuhong Zhong

RESEARCH INTERESTS

Software systems, CXL, resource pooling, memory tiering, storage systems, eBPF

EDUCATION

2022-Present **Columbia University**, New York, NY
Ph.D., Computer Science
Advisor: Asaf Cidon

2019-2021 **Columbia University**, New York, NY
M.S., Computer Science

2015-2019 **Harbin Institute of Technology**, Harbin, China
B.Eng., Computer Science and Technology

PUBLICATIONS

1. **Oasis: Pooling PCIe Devices Over CXL to Boost Utilization**
   Yuhong Zhong, Daniel S. Berger, Pantea Zardoshti, Enrique Saurez, Jacob Nelson, Dan R. K. Ports, Antonis Psistakis, Joshua Fried, Asaf Cidon
   SOSP 2025 (ACM Symposium on Operating Systems Principles)
   Acceptance rate: 18%

2. **My CXL Pool Obviates Your PCIe Switch**
   Yuhong Zhong, Daniel S. Berger, Pantea Zardoshti, Enrique Saurez, Jacob Nelson, Antonis Psistakis, Joshua Fried, Asaf Cidon
   HotOS 2025 (ACM Workshop on Hot Topics in Operating Systems)
   Acceptance rate: 21%

3. **Managing Memory Tiers with CXL in Virtualized Environments**
   Yuhong Zhong, Daniel S. Berger, Carl Waldspurger, Ryan Wee, Ishwar Agarwal, Rajat Agarwal, Frank Hady, Karthik Kumar, Mark D. Hill, Mosharaf Chowdhury, Asaf Cidon
   OSDI 2024 (USENIX Symposium on Operating Systems Design and Implementation)
   Acceptance rate: 16%

4. **Memtrade: Marketplace for Disaggregated Memory Clouds**
   Hasan Al Maruf, **Yuhong Zhong**, Hongyi Wang, Mosharaf Chowdhury, Asaf Cidon, Carl Waldspurger
   SIGMETRICS 2023 (ACM International Conference on Measurement and Modeling of Computer Systems)
   Acceptance rate: 10%

5. **XRP: In-Kernel Storage Functions with eBPF**
   Yuhong Zhong, Haoyu Li, Yu Jian Wu, Ioannis Zarkadas, Jeffrey Tao, Evan Mesterhazy, Michael Makris, Junfeng Yang, Amy Tai, Ryan Stutsman, Asaf Cidon
   OSDI 2022 (USENIX Symposium on Operating Systems Design and Implementation)
   Acceptance rate: 19%
   Jay Lepreau Best Paper Award

6. **BPF for Storage: An Exokernel-Inspired Approach**
   Yuhong Zhong*, Hongyi Wang*, Yu Jian Wu*, Asaf Cidon, Ryan Stutsman, Amy Tai, Junfeng Yang (* equal contribution)
   HotOS 2021 (ACM Workshop on Hot Topics in Operating Systems)
   Acceptance rate: 25%

PREPRINTS

1. **Octopus: Scalable Low-Cost CXL Memory Pooling**
   Daniel S. Berger, **Yuhong Zhong**, Fiodar Kazhamiaka, Pantea Zardoshti, Shuwei Teng, Mark D. Hill, Rodrigo Fonseca

2. **BPF-oF: Storage Function Pushdown Over the Network**
   Ioannis Zarkadas*, Tal Zussman*, Jeremy Carin, Sheng Jiang, **Yuhong Zhong**, Jonas Pfefferle, Hubertus Franke, Junfeng Yang, Kostis Kaffes, Ryan Stutsman, Asaf Cidon (* equal contribution)

AWARDS

2023 **Memorable Paper Award Finalist**, Non-Volatile Memories Workshop (NVMW) 2023

2022 **Jay Lepreau Best Paper Award**, USENIX OSDI 2022

2019 **Outstanding Graduate Award**, Harbin Institute of Technology

TEACHING

2020 Fall **EECS E6897: Topics in Distributed Storage Systems**, Columbia University
Teaching Assistant
Instructor: Asaf Cidon
Graduate-level research seminar course (~10 students) on distributed systems. The topics include file systems, consistency and consensus, synchronization, replication, erasure coding, caching, memory disaggregation, deduplication, and systems + machine learning.

WORK EXPERIENCE

2024-2025 **Microsoft** Remote
Software Design Engineer 2 (Part-Time Contractor, Hired Through Populus Group), Azure Hardware Architecture
Mentors: Daniel S. Berger, Pantea Zardoshti
Building software for CXL memory pooling prototype and researching CXL memory sharing.

2024 Summer **Microsoft** Redmond, WA
Research Intern, Azure Research - Systems
Mentors: Daniel S. Berger, Pantea Zardoshti
Built several software components to prototype CXL memory pooling to study its performance implications and benefits.

2023-2024 **Microsoft** Remote
Software Design Engineer 1 (Part-Time Contractor, Hired Through Populus Group), Azure Hardware Architecture
Mentor: Daniel S. Berger, Mark D. Hill
Evaluated the performance of CXL memory devices and designed software systems for Intel Flat Memory Mode to mitigate outlier performance and avoid interference.

2021-2022 **VMware** Palo Alto, CA
Member of Technical Staff, vSAN Group
Developed transaction and crash recovery support for SplinterDB, which was integrated into vSAN Express Storage Architecture.

2020 **TuSimple** Tucson, AZ
Software Engineer Intern, Sensor Software Team
Built visualization tools and new features for the data-processing pipeline of self-driving trucks.

TALKS

Oasis: Pooling PCIe Devices Over CXL to Boost Utilization

07/2025 AI and Systems Co-Design, Meta

05/2025 ACM HotOS 2025

Managing Memory Tiers with CXL in Virtualized Environments

08/2024 Open Compute Project (OCP), Composable Memory System

07/2024 USENIX OSDI 2024

02/2024 Azure Research - Systems, Microsoft

01/2024 Xeon Memory Tiering Working Group, Intel

Limitations of PEBS for Tracking Main Memory Requests

05/2023 Open Compute Project (OCP), Composable Memory System

03/2023 Azure Research - Systems, Microsoft

XRP: In-Kernel Storage Functions with eBPF

04/2024 Brown University Systems Seminar

04/2024 Northeastern University Systems Seminar

03/2024 Harvard University Systems Seminar

03/2024 University of Wisconsin-Madison Systems Reading Group

02/2024 University of Washington Systems Seminar

02/2024 UCSD Big Arch Seminar

09/2023 Cornell University Systems Seminar

03/2023	Microsoft Research Asia ACE Talk Series
03/2023	Non-Volatile Memory Workshop (NVMW) 2023
10/2022	Meta Systems Talk
09/2022	eBPF Summit 2022
07/2022	USENIX OSDI 2022
06/2021	ACM HotOS 2021

ACADEMIC SERVICE

2024	**Reviewer**: Journal of Systems Architecture
2023	**Reviewer**: ACM Transactions on Architecture and Code Optimization (TACO)

MENTORING

2024-Present	**Patrick Tong**, Columbia University
2024-2024	**Sam Edwards**, Columbia University
2023-2024	**Ryan Wee**, Columbia University
2023-2024	**Phoebe Lu**, Columbia University (Now: Flatiron Health)
2023-2023	**Helen Chu**, Columbia University
2022-2023	**Shruti Verma**, Columbia University (Now: M.S. student in CS at Stanford University)

OUTREACH

2023-Present	**Co-Organizer**: Students @ Systems
2023-2023	**Co-Organizer**: Queers in STEM (*q*STEM) at Columbia University
2022-2023	**Reviewer**: Pre-Application Review Program for PhD Applicants (PAR), Columbia University