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Yuhong Zhong

RESEARCH INTERESTS

Software systems, memory tiering, CXL, 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. **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%

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)
   In Submission

3. **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%

4. **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

5. **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%

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-Present **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

	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
	BPF for Storage: An Exokernel-Inspired Approach
06/2021	ACM HotOS 2021

ACADEMIC SERVICE

2023	**Reviewer**: ACM Transactions on Architecture and Code Optimization (TACO)

MENTORING

2023-Present	**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