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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, 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
   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

2023-Present **Microsoft** Redmond, WA
Software Design Engineer 1 (Part-Time Contractor, Hired Through Populus Group), Azure Systems Research and Azure Hardware Architecture
Mentors: Daniel S. Berger, Mark D. Hill
Evaluating the performance of CXL memory devices and designing software systems for CXL.

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

Memory Tiering with Flat Memory Mode and Mitigating Performance Outliers

02/2024 Azure Systems Research Group, 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 Systems Research Group (Host by Prof. Mark D. Hill), Microsoft
	XRP: In-Kernel Storage Functions with eBPF
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 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-Present	**Co-Organizer**: Queers in STEM (*q*STEM) at Columbia University
2022-Present	**Reviewer**: Pre-Application Review Program for PhD Applicants (PAR), Columbia University