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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

2023-Present **Microsoft** Redmond, WA
*Research Intern, Azure Research - Systems*
*Software Design Engineer 1 (Part-Time Contractor, Hired Through Populus Group), Azure Hardware Architecture*
Mentor: Daniel S. Berger
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

**Managing Memory Tiers with CXL in Virtualized Environments**

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-Present **Co-Organizer**: Queers in STEM (*q*STEM) at Columbia University

2022-Present **Reviewer**: Pre-Application Review Program for PhD Applicants (PAR), Columbia University