Yizhou Shan

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RESEARCH INTERESTS

My research interests span Operating Systems, Distributed Systems, and Non-Volatile Memory, with a focus on building fast and reliable systems for datacenters. I work at Wuklab, Purdue ECE, under the supervision of Prof. Yiying Zhang.

EDUCATION

Purdue University   2021
Ph.D. in Computer Engineering   (expected)

Institute of Computing Technology, Chinese Academy of Sciences   2016
Graduate Coursework in Computer Science

Beijing University of Aeronautics and Astronautics   2014
B.E. in Computer Engineering

INDUSTRY EXPERIENCE

Research Intern**, VMware Research**   Palo Alto, CA, Summer 2018
Mentor: Dr. Stanko Novakovic

PUBLICATIONS

Yizhou Shan, Yutong Huang, Yilun Chen, Yiying Zhang, "LegoOS: A Disseminated, Distributed OS for Hardware Resource Disaggregation", 13th USENIX Symposium on Operating Systems Design and Implementation (***OSDI '18***)

Yizhou Shan, Shin-Yeh Tsai, Yiying Zhang, "Distributed Shared Persistent Memory", 9th Annual Non-Volatile Memories Workshop (***NVMW '18***)

Yizhou Shan, Shin-Yeh Tsai, Yiying Zhang, "Distributed Shared Persistent Memory", Proceedings of the ACM Symposium on Cloud Computing 2017 (***SoCC '17***)

POSTER AND TECHNICAL REPORTS

Yiying Zhang, **Yizhou Shan**, Sumukh Hallymysore, "Disaggregated Operating System", 17th International Workshop on High Performance Transaction Systems (***HPTS '17***)

Yizhou Shan, Yilun Chen, Yutong Huang, Sumukh Hallymysore, Yiying Zhang, "Lego: A Distributed, Decomposed OS for Resource Disaggregation", Poster at the 26th ACM Symposium on Operating Systems Principles (***SOSP'17***)

Yizhou Shan, Sumukh Hallymysore, Yutong Huang, Yilun Chen, Yiying Zhang, "Disaggregated Operating System", Poster at the ACM Symposium on Cloud Computing 2017 (***SoCC '17***)

RESEARCH EXPERIENCE

Disaggregated Operating System   2017-2018
Purdue University
We propose a new OS model called the splitkernel to manage disaggregated systems. Splitkernel disseminates traditional OS functionalities into loosely-coupled monitors, each of which runs on and manages a hardware component. Using the splitkernel model, we built LegoOS, a new OS designed for hardware resource disaggregation.

Distributed Shared Persistent Memory   2016-2017
Purdue University
We propose Distributed Shared Persistent Memory (DSPM), a new framework for using persistent memories in datacenter environments. We designed and implemented *Hotpot*, the first DSPM system in Linux kernel. Hotpot provides low-latency, transparent memory accesses, data persistence, data reliability and high availability.

Non-Volatile Memory (NVM) Emulator   2015-2016
Institute of Computing Technology, Chinese Academy of Sciences

We designed and implemented a NVM emulator in Linux kernel, which leverages Intel's Performance Monitoring Unit to emulate NVM's slower read/write latency and smaller bandwidth on physical DRAM. This emulator runs on bare-metal x86 machines.

ARMv8 CPU Project   2013

Institute of Computing Technology, Chinese Academy of Sciences

I participated in the Register-Transfer Level design and verification of some blocks within cache unit and load-store unit. It is commercial project collaborated with Huawei.