Yizhou Shan

Ph.D. Student
School of Electrical and Computer Engineering
Purdue University

ys@purdue.edu
(765) 337-0133
lastweek.io

RESEARCH INTERESTS

My research interests span Operating System, Distributed System, and Computer Architecture, 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   2016-2021
Ph.D. in Computer Engineering   (expected)

Institute of Computing Technology, Chinese Academy of Sciences   2014-2016
Research Assistant

Beijing University of Aeronautics and Astronautics   2010-2014
B.E. in Computer Engineering

INDUSTRY EXPERIENCE

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

PUBLICATIONS

Stanko Novakovic, **Yizhou Shan**, Yiying Zhang, Michael Wei, Liran Liss, Haggai Eran, Dan Tsafrir, Aasheesh Kolli, Marcos Aguilera, "Storm: a fast distributed storage system using remote memory primitives", **under submission**.

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*) (**Best Paper Award**)

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

Yizhou Shan, Yiying Zhang, "Disaggregating Memory with Software-Managed Virtual Cache", the 2018 Workshop on Warehouse-scale Memory Systems (*WAMS '18*) (co-located with ASPLOS '18)

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*)

AWARDS
OSDI '18 Jay Lepreau Best Paper Award
OSDI '18 Student Travel Grant
SOSP '17 Student Travel Grant
SoCC '17 Student Travel Grant

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.