Syracuse. NY
syang32@syr.edu

Shao-Peng Yang

Personal Site
spypaul

Profile

- A Ph.D. student in Electrical and Computer Engineering exploring Memory Systems, Operating Systems, and Storage Systems
- Looking for **internship opportunities** focused on hardware and system design, with a particular interest in **CXL Type 3 devices** and **the CXL fabric manager**

Education

Ph.D. in Electrical and Computer Engineering **Fall 2021 Year - Spring 2026 (expected)**
Syracuse University

Bachelor of Science in Electrical and Computer Engineering **Fall 2017 - Spring 2021**
Western Washington University *GPA: 3.96/4.0 | IEEE-Eta Kappa Nu*

Skills

Programming C++, Parallel and Multithreaded Programming, C, Assembly, Python, Matlab

Hardware Design Verilog, Altium, Digital Logic Design, skills in utilizing lab tools such as oscilloscopes

Experience

Research Assistant **Fall 2021 - Present**
Syracuse University
Advisor: Dr. Bryan S. Kim

- Exploring methods to model **CXL fabric** for connecting multiple hosts and devices
- Building a **CXL-flash device simulator** based on an open-sourced SSD simulator in C++
- Researching the architecture design of CXL-flash using techniques such as caching and prefetching

Publications

- Shao-Peng Yang, Minjae Kim, Sanghyun Nam, Juhyung Park, Jin-yong Choi, Eyee Hyun Nam, Eunji Lee, Sungjin Lee, Bryan S. Kim. Overcoming the Memory Wall with CXL-enabled SSDs. To appear in *USENIX Annual Technical Conference (ATC)*, 2023
- Shao-Peng Yang, Seungmin Shin, Sungjin Lee, Eunji Lee, Bryan S. Kim. When Serverless Meets CXL. Under review for *ACM Workshop on Hot Topics in Storage and File Systems (HotStorage)*, 2023

Course Projects

FPGA Projects with Verilog
- Utilized a **Xilinx Zynq UltraScale+ MPSoC** board for hardware/software co-design
- Implemented various **state machines** to build controllers such as a VGA controller

C++ Programming
- Practiced **multi-threading** techniques for utilizing mutexes, locks, and conditional variables
- Applied **parallel programming** techniques on algorithms such as Fast Fourier Transform and Bitonic Sort
- Implemented various data structures and algorithms such as a red-black tree and searching algorithms
- Practiced advanced concepts such as operator overloading and copy constructors

WWU ECE Final Project - Wearable Device for Scuba Diving
- Participated in the full product design process
- Designed the product circuit and utilize **Altium** to design a 2-layer PCB
- Wrote drivers for communication protocols such as SPI in C
- Utilized U/COS, a **real-time operating system** for multi-tasking of the software design