Yao Xu (John)

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Education

Carnegie Mellon University Pittsburgh, PA
Master of Science in Electrical and Computer Engineering May 2024

The Pennsylvania State University University Park, PA
Bachelor of Science in Computer Engineering | GPA: 3.88/4.00 May 2022

Languages and Skills

C++, C, Python, shell, Assembly(x86,MIPS,HC12/S12, ARM), Verilog, Java, JavaScript, Docker, Computer Networks

Relevant Courses and Projects

- **Operating System** – Process management, process coordination, memory management, distributed systems and storage management
  Projects: https://github.com/YaoGH-code/MallocLab - A dynamic memory allocator written in C
  https://github.com/YaoGH-code/MemSim - A virtual memory and process scheduling simulator written in C
- **Computer Organization and Design -** Computer architecture, memory hierarchy and design, CPU design, pipelining and multiprocessor architecture
  Project: https://github.com/YaoGH-code/mCPU - A MIPS 5-stage pipeline CPU written in Verilog
- **Systems Programming** – Machine-level code and its generation by compilers, computer arithmetic, memory organization and management, networking technology and protocols and concurrent computation
  Project: https://github.com/YaoGH-code/sg - A driver of an online storage system written in C
- **Embedded Systems -** Coding assembly program running on the HCS12 microcontroller
  Project: https://github.com/YaoGH-code/HSC12_Practice
- **Parallel Computer Architecture and Programming –** Designing and writing parallel programs that scale effectively to large numbers of processors
- **Field Programmable Devices** – Implemented adders and a complex-number multiplier by utilizing DSPs in Verilog. Implemented a FIR filter and a CORDIC based signal processor with HLS and deployed them on Zedboard with Xilinx Vivado tool kit.
- **Linux Kernel Module development** – Linux kernel module projects
  Projects: https://github.com/YaoGH-code/kernel_module_dev

Work and Research Experience

05-08/2021 **Software Development Engineer**
Tencent, Shenzhen, China
- Developed an automated test project in Python for the backend program of a Network Intrusion Prevention System (NIPS) to verify log management, attack blocking, black and white lists and other functions
- Conducted performance testing on attack packet blocking function for the system on ARM and x86 Linux servers with JMeter and Wrk2
- Worked with colleagues to found and resolve bugs for the system in different environments to improve user experience

2021-2022 **Undergraduate Researcher**
Microsystem Design Laboratory, The Pennsylvania State University
- Conducting research on accelerating neural networks on FPGA with Vitis AI tool kit
- Developed an automated microscope camera system to help create insect datasets

06-08/2020 **Java Backend Development Engineer**
Shandong Institute of Big Data, Jinan, China
- Responsible for developing the backend project with Spring Boot and part of frontend project with Ant Design components and Vue for a data assets management web application
- Developed CRUD interfaces with Mybatis-Plus, independently implemented data asset management, timed data extraction task management, user black and white lists management modules and integrated Redis to the backend application