Yiwei Yang

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Education

UC Santa Cruz, Ph.D. Student 08/2022 – 06/2028

- Major: Computer Science, advised by Andrew Quinn. 22 Fall TA of Computer Architecture

ShanghaiTech University, Undergraduate 09/2018 – 06/2022

- Major: Computer Science, finished Compiler, Network, Database, OS, CA, Convex, RL, Parallel Computing. 21& 22 Spring TA of Compiler

Work Experience

Jump Trading, Shanghai, China 07/2020 – 09/2020

(Linux Team) Production Engineer Intern

- High Frequency Trade Order Book simulation applying Linear.Regression Method.
- Designed a user interface to automate the core affinity of jobs.
- Designed an eBPF exporter of GPFS full OSS lifetime traces for better reporting the bottleneck.

Research Experience

Storage Systems Research Center, UC Santa Cruz 08/2022 – Present

(Graduate Research) Assistant

- Understand the performance characteristics of CXL.mem systems. Data-driven far memory allocation, prefetching, and replacement policies.
- Make Hardware Software Co-design for on CXL.cache data movement
- Make Virtual Machine migration based on WebAssembly and WASI
- Make cross kernel-userspace eBPF observation for distributed system

Publications

"bpftime: userspace eBPF Runtime for Uprobe, Syscall and Kernel-User Interactions" LPC23 Yusheng Zheng,Tong Yu, **Yiwei Yang**, Yanpeng Hu, Xiaozheng Lai, Andrew Quinn.
"CXLMemSim: A pure software simulated CXL.mem for performance characterization." Yarch23 **Yiwei Yang** Pooneh Safayenikoo, Jiacheng Ma, Tanvir Ahmad Khan, Andrew Quinn.
"Attack as Defense: Characterizing Adversarial Examples using Robustness." ISSTA21 Zhao, Zhe, Guangke Chen, Jingyi Wang, **Yiwei Yang**, Fu Song, and Jun Sun.

Portfolios

bpftime https://github.com/eunomia-bpf/bpftime/ — Make cross boundary observation for the kernel

IORing Rust https://github.com/LemonHX/ioring-rs — IORing Rust for windows, support monoio

MVVM https://github.com/Multi-V-VM/MVVM — Live migration over WebAssembly with WASI support

Bede-linux https://github.com/SlugLab/Bede-linux — Per Process RSS Node Limit Linux kernel for CXL

OpenCopilot https://github.com/eunomia-bpf/OpenCopilot — Open source implementation of Windows Copilot for system maintainance

Skills

- **Programming Languages**: not limited to any specific language, and experienced in Python/C++/Rust, comfortable with Golang/C/Java/Scala/TypeScript (in random order).
- **System**: Specialist in Compiler & Performance Analysis, familiar with `LLVM`, `MLIR`, `Gem5`, `WASM`, `gdb`, `eBPF`, `qemu`, `chisel`, `Linux mm & observability subsystem`.
- **Machine Learning**: familiar with general knowledge of machine & reinforce learning, interested of RL for Sys.

Miscellaneous

- Interests: Computer Architecture, Storage System, Formal Methods, etc.
- Awards:
  - Lead GeekPie_HPC *Ranked 2*, SC-SCC21. *Ranked 4*, ISC22. Advise Not-Slow-Slug *Ranked 2*, ISC23.
  - As a member of 0x238e *Best award*, Bitrun, Hang Zhou, 2019.
  - *Second Award*, Shanghai CTF invitation competition, 2019.