Linkai Song

EDUCATION

University of Science and Technology of China   Sept 2021 - Jun 2025(expected)
Bachelor of Engineering in Computer Science and Technology   GPA: 3.83/4.3,Weighted Score: 89.47,Ranking: 34/254

RESEARCH EXPERIENCE

Xlab at UIUC   Urbana, Illinois, USA
Research Assistant, Prof Tianyin Xu at UIUC   July 2024 - present

Advanced Data Systems Laboratory at USTC   Hefei, Anhui, China
Research Assistant, Prof Cheng Li at USTC   Aug 2023 - July 2024

PROJECTS

Ahardware-software co-design accelerator for data movement   Aug 2023 - July 2024
Advisor: Prof Sam H. Noh at Virginia Tech, Prof Cheng Li at USTC

- A comprehensive analysis of Intel DSA performance with real-world applications
    - performance with different data movement patterns (sequential, random, aligned and unaligned, etc.)
    - performance with different configurations of DSA (batched, interrupt based, polling based, etc.)
    - performance degradation caused by page faults, address translation cache, cache coherence.
- An application-transparent framework to utilize DSA for data movement acceleration
    - design a non-blocked asynchronous `memcpy()` to hide the latency of `memcpy()` from critical path
    - hide overhead of DSA copy operations behind page fault handling
    - reduce the overhead of context switch in handling page faults through a kernel/user space hybrid framework
- Primary results: 1.1x-4x speedup for microbenchmarksup to 1.2x speedup for Redis on YCSB

SKILLS

- **Programming:** C/C++, Verilog HDL, Python, Rust, Shell script, LaTeX
- **Others:** Git, Perf, GDB, GCC, Docker, LLVM, eBPF, Makefile, Linux Kernel
- **Languages:** Chinese(native), English(fluent).

Awards

- Silver Prize of excellent student (USTC, 2023)
- Copper Prize of excellent student (USTC, 2022)

ADDITIONAL INFORMATION

English

- **TOFEL-iBT:**97(s21)
- **GRE:**Verbal Reasoning 153,Quantitative Reasoning 167,Analytic Writing 3.5