Jiakun Fan

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Education

Virginia Polytechnic Institute and State University September 2024 - Present
Ph.D. in Computer Science. Research Interests: HPC, MLSys, LLM *GPA: 4.0/4.0*

The Chinese University of Hong Kong Shenzhen September 2020 – June 2024
BENG in Electrical and Computer Engineering *Rank: 45/137*

Core Courses: Advanced Computer Architecture, Computer Architecture, Operating system, Algorithm Design & Analysis, Computer Networks, Software Engineering, Database System, Data Structure, Discrete Mathematics, Microprocessors & Computer Systems

University of Rochester January 2023 – May 2023
Exchange Student *GPA: 3.85/4.0, Dean's List*

Core Courses: Software Analysis & Improv, Computer Security Foundation , Parallel & Distributed System

Publication

Yuzhou Tong, **Jiakun Fan**, Xuhong Cai and Yi Chen (2023), "Rate Adaptation with Correlated Multi-Armed Bandits in 802.11 Systems" IEEE ICCC 2023.

Projects

LLM Inference Serving on Edge devices | *C/C++, Python* Fall 2024
- Collaborate CPU and GPU to speedup LLM serving
- On-premise LLM serving system with CPUs and consumer-grade GPUs

Comparative Study of ARM NEON and ARM SVE Instruction Sets | *C/C++* Spring 2024
- Compare ARM NEON and SVE with RIKEN simulator on GEM5
- Provide detailed analysis based on trace

MVCC Software Transactional Memory | *Rust* Spring 2023
- Implemented software transactional memory in Rust
- Support side-effect operations
- Employ multi-version concurrency control (MVCC) to enhance the performance of writes to transactional memory

5-Stage-Pipelined-CPU | *Verilog* Fall 2021
- Implemented a Five-Stage Pipelined CPU via Verilog
- Use a forwarding module to avoid hazard like RBW (read before write)
- Add "shift" signal to support shift amount

Extra-curricular Activities

Network Coding Lab | *Research Assistant* 2021 – 2024
Maintain BATS code; Implement distributed storage system based on Shift-XOR codes

Computer Community | *Member* 2021 – 2024
The community hosts a monthly computer science seminar covering programming, algorithms, and technical concepts

Mathematical Contest In Modeling 2021 | *Contestants* Winter 2020
Won S award for innovative solution to "Re-optimizing Food Systems"

Skills

Languages: C/C++, CUDA, Pytorch, Java, Rust, Python, LaTeX, MarkDown
Tools: Git/GitHub, Unix Shell, Pytorch, Hadoop3, Docker, Valgrind