Chendi Li

lichendi.cs@gmail.com looking for a 2022 Fall Ph.D. program Personal website

I am currently a graduate student at the State Key Laboratory of Computer Architecture, Institute of Computing Technology, Chinese Academy of Sciences, supervised by Prof. **Yunquan Zhang**. My research interests including high-performance computing, sparse/dense matrix multiplication and AI+HPC. The expected graduation date is 2022 Summer.

Education

Master of Computer Science, Institute of Computing Technology, Chinese Academy of Sciences **Sep 2019 — June 2022**
Bachelor of Computer Science, Hunan Agricultural University **Sep 2014 — June 2018**

Research Experience

Graduate Student Research Assistant **Sep 2019 — Present**
State Key Laboratory of Computer Architecture, Institute of Computing Technology, Chinese Academy of Sciences

Undergraduate Research Assistant **Jan 2018 — June 2019**
State Key Laboratory of Computer Architecture, Institute of Computing Technology, Chinese Academy of Sciences

Publications

1. **[IEEE ISPA 2021] Chendi Li**, Haipeng Jia, Hang Cao, et al. **AutoTSMM: An Auto-tuning Framework for Building High-Performance Tall-and-Skinny Matrix-Matrix Multiplication on CPUs.**
2. **[IEEE ICPADS 2021, accepted]** Jianyu Yao, Boqian Shi, Chunyang Xiang, Haipeng Jia, **Chendi Li**, et al. **IAAT: An Input-Aware Adaptive Tuning framework for Small GEMM.**
3. **[IEEE HPCC 2021, accepted]** Tun Chen, Haipeng Jia, Zhihao Li, **Chendi Li**, et al. **A Transpose-free Three-dimensional FFT Algorithm on ARM CPUs**
4. **[CCF HPC China 2020] Chendi Li**, Guangting Zhang, Haipeng Jia. **Fast Computation of Elementary Functions on ARM Platforms**(in Chinese)

Research Projects

AutoTSMM, Author **Nov 2020 — Present**
- Designed AutoTSMM, which is used to build high-Performance tall-and-skinny matrix multiplication on all mainstream CPUs. AutoTSMM can speed up convolution layers in real-world deep learning applications, and the performance is competitive with Intel OneMKL and outperforms all conventional GEMM implementationss. This work is published in IEEE ISPA 2021.

OpenBLAS, Contributor **Nov 2020 — Present**
- Optimized pre-pack matrix-matrix multiplication and triangular solve with multiple right-hand-sides(TRSM) on ARMv8 and X86 platforms. OpenBLAS is a one of the most famous open-source BLAS library.

IAAT, Contributor **Nov 2020 — Present**
- Launched the project and investigated JIT tools for small GEMM. IAAT is a template-driven just-in-time(JIT) small GEMM framework targeting CPUs. This work is accepted by IEEE ICPADS 2021.

OpenVML, Co-author **Jan 2020 — Oct 2020**
- Optimized the math functions on the ARMv8 platform. OpenVML is a vector math library. It achieves an outstanding performance improvement compared to C standard library and ARMPL. This work is accepted by HPC China 2020.

AutoFFT, Contributor **Jan 2018 — Present**
- Optimized small-scale FFT on ARMv8 platforms, and did some works on multi-threading and 2D-FFT. AutoFFT is a template-based FFT codes auto-generation framework for ARM and X86 CPUs. This work is published in SC'19 and TPDS'20.

Awards & Honors

2021 First-class scholarships
2020 Second-class scholarship
2019 Third-class scholarship, Outstanding intern in PerfXLab
2015 Collegiate programming contest first prize; Outstanding volunteer

Technical Skills

Tools Linux, Git, Vim, CMake, GDB, OpenMP, Pthreads
Programming/Scripting C, Latex, Assembly, Python, Neon intrinsic