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 (CARCH, ICT, CAS), supervised by Prof. **Yunquan Zhang**. My research interests including high-performance computing, CPU and GPU acceleration, optimized BLAS library.
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 — Now**
Institute of Computing Technology, Chinese Academy of Sciences Beijing

Undergraduate Research Assistant **Jan 2018 — Jun 2019**
Institute of Computing Technology, Chinese Academy of Sciences Beijing

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, under review]** Jianyu Yao, Boqian Shi, Chunyang Xiang, Haipeng Jia, **Chendi Li**, et al. IAAT: An Input-Aware Adaptive Tuning framework for Small GEMM.
3. **[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 — Now**
- I designed AutoTSMM independently, which is used to build high-Performance tall-and-skinny matrix multiplication on all mainstream CPUs. And the performance is competitive with state-of-the-art TSMM implementation from Intel MKL and outperforms all conventional GEMM implementations on X86 and ARMv8 platforms. AutoTSMM was accepted by IEEE ISPA 2021.

OpenBLAS, Contributor **Nov 2020 — Now**
- OpenBLAS is an open-source BLAS library. I'm responsible for optimizing pre-pack matrix-matrix multiplication and triangular solve with multiple right-hand-sides(TRSM) on ARMv8 and X86 platforms.

IAAT, Contributor **Nov 2020 — Now**
- IAAT is a just-in-time(JIT) small GEMM framework targeting CPUs. I helped to launch the project and did a lot of investigations on how to use JIT tools. I participate in brainstorming and conferences every week. IAAT is being reviewed by IEEE ICPADS 2021.

OpenVML, Co-author **Jan 2020 — Oct 2020**
- OpenVML is a vector math library. I was responsible for optimizing the math functions on the ARMv8 platform. The OpenVML achieve a outstanding performance improvement C standard library function and ARMPL. The paper "Fast Computation of Elementary Functions on ARM Platform" was published in HPC China 2020.

AutoFFT, Contributor **Jan 2018 — June 2019**
- AutoFFT is a template-based FFT codes auto-generation framework for ARM and X86 CPUs. I was mainly responsible for optimizing small-scale FFT on ARMv8 architecture. Later, I also did some preliminary work on multi-threading and 2D-FFT. AutoFFT is the first research project I participated in, and I learned a lot from it. AutoFFT was published in SC'19 and TPDS'20.

Awards & Honors

2021 ICT first-class scholarships
2020 ICT second-class scholarship
2015 HUNAU 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