Chendi Li

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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 — Present**
Institute of Computing Technology, Chinese Academy of Sciences   Beijing

Undergraduate Research Assistant   **Jan 2018 — June 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 — Present**
- 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 — Present**
- 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 — Present**
- 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