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, 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 is competitive with Intel MKL and outperforms all conventional GEMM implementations on X86 and ARMv8 platforms. 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