YUEQIANG HE

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RESEARCH INTEREST

HPC(HIGH PERFORMANCE COMPUTING)

Reason: I find the scheduling algorithms and hardware design related to high-performance computing to be quite intricate, while also finding the applications of high-performance computing in various real-world domains to be very fascinating.

EDUCATION

University of Science and Technology of China (USTC) **Aug. 2022 – Jun. 2026**

Computer Science and Technology
Hua Xia Talent Program, Major in Computer Science, Minor in Finance
GPA: 3.67/4.3
Core Course: Data Structures(4.3), Analog and Digital Circuits(4.0), Software Engineering Practice(4.3), Fundamentals of Scientific Programming with Python(4.0), Computer Organization and Design(Honor)(3.7), Operating System(Honor)(3.7), Algebraic Structure(4.0), Equations of Mathematical Physics B(4.0), Mathematical Analysis(3.7), Linear Algebra B1(3.7), Function of Complex Variable B(3.7),Graph Theory(3.7), Probability Theory and Mathematical Statistics(3.7), Stochastic Processes B(3.7).....

RESEARCH EXPERIENCE

Using Ray to Optimize Distributed Deployment of Foundational Model Mar. 2024 - June.2024
- **Project Introduction:** Our goal is to achieve parallel training and inference of large models through Ray and tools such as DeepSpeed ZeRO, automatic dataset partitioning, and vLLM.
- **My Main Contribution:** By leveraging Ray's API and automatic dataset distribution, we have achieved nearly linear acceleration in large model training.
- **My Work Summary:** https://github.com/OSH-2024/Team_SwanGeese

Automated Reasoning Engine System USTC
Advisor: **Prof. Yi Zhou** (School of Information Science and Technology) Sept. 2023 - July.2024
- **Project Introduction:** We aim to explore Cognitive Intelligence, including the development of a knowledge-based artificial intelligence programming language and an IMO automatic answering system.
- **My Main Contribution:** Data Annotation for IMO Questions, Operator Modeling in Modern Algebra, Designing a Mathematics Problem Understanding System

Extending Basilisk to C++ Using Clang Frontend USTC
Advisor: **Prof. Hong An** , **Prof. Junshi Chen** (School of Computer Science and Technology) Sept. 2024 - Nov.2024
- **Project Introduction:** We are focused on researching language extension and migration, with the goal of extending the Basilisk language to support C++ syntax through modifications to the Clang frontend.(Basilisk is an open source software for solving partial differential equations on adaptive rectangular grids.)
- **My Main Contribution:** Investigate the compilation process of basilisk and C++ and assess the feasibility of migration
- **My Work Summary:** https://github.com/YueqiangHe/basilisk_and_clang

Dense kernel-based LU solver for Kunpeng Processor (Ongoing) USTC
Advisor: **Prof. Hong An** , **Prof. Junshi Chen** (School of Computer Science and Technology) Dec. 2024 - Present
- **Project Introduction:** We are committed to researching LU solvers. Our initial focus is on optimizing sparse matrix reordering and designing a storage format for dense block optimization.
- **Research progress:** Understanding design concepts and directions of LU and grid solvers through related two papers.
- **Upcoming Step:** Reproduce the results of the two paper.

SKILLS & HONORS

Teach Assistant: Teach Assistant in Analog and Digital Circuit Experiments in 2024.
Honors: Outstanding Student Scholarship (Silver, TOP 20%) in 2024, 2023. Provincial 2nd prize in Chinese Mathematics Competitions in 2024, Outstanding Freshman Scholarship in 2022. Honors College Bursaries in 2024.
Programming Skills*:* C, C++, Python, Verilog, Java, Javascript, matlab, html, css, Fortran.
Language*:* TOEFL Score: 91 (Reading: 26 , Listening: 23, Writing: 23, Speaking: 19)
Extracurricular Activities: Committee Member of Life of Class 2, the School of Computer Sciences, Grade 22