

Yeqi Huang

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EDUCATION

- **University of Science and Technology of China** Hefei, China
Bachelor of Computer Science; GPA: 3.44/4.3 *July 2017 - June 2021*
Courses: Operating Systems, Artificial Intelligence, Principle of Compiler, Computer Architecture, High Performance Architecture
Honors: 2017, 2018, 2019, 2020 Outstanding Student Scholarship
- **University of Science and Technology of China** Hefei, China
Master of Computer Science; *July 2021 - June 2022*
Courses: Computer Vision, Approximation algorithms, Distributed Algorithms, Parallel Programming
- **University of Edinburgh** Edinburgh, UK
PhD of Computer Science; *August 2023 - Present*
Research Field: AI-System, Distributed ML, ML-oriented architecture, Serverless

AWARDS

International Awards:

- International Supercomputing Conference Student Cluster Competition Champion - 2021
- Asian Supercomputer Conference Student Cluster Competition First Prize - 2021

National Awards:

- Best Chinese Supercomputing Application of the Year - 2022
- Huawei Pioneer Developer (4 in China) - 2021
- National Compiler Designing Competition Second Prize - 2021
- National Parallel Application Competition Second Prize - 2019

PROJECTS

- **Dynamics of a tunable QED in quantum spin ice:**
 - Provided simulation data for this work.
 - Build some tools to convert FORTRAN into modern C++ for further performance enhancement.
 - This work was presented at the APS conference and received guidance and recognition from Nobel Laureate Frank Wilczek.
- **ACM Gordon Bell Prize Nomination:**
 - This work is accepted on SC 2021.
 - Participated in some optimization work based on particle-in-cell method.
 - Provided visualization for this work.
- **Best Chinese Supercomputing Application of the Year 2021:**
 - Participated in auto code generation for the specific architecture.
- **ISC Student Cluster Champion:**
 - Responsible for ELMER/ICE in the competition. Achieved a 12x performance increase for a specific case.
 - Provided a state-of-art visualization module for ELMER/ICE (generated by Unreal Engine).
- **ASC Student Cluster First Prize:**
 - Responsible for QUEST and HPL benchmark in the competition.
 - Achieved a 2.4x performance boost on QUEST. Extend the computation scale by using GPUs.

RECENT RESEARCH

- **Scalable Quantum Circuit Simulator Project:** Developing a quantum circuit simulation backend that supports multi-GPU implementation. The primary objective is to enhance the data-prefetching strategy across multiple GPUs. Plan to submit paper for ATC next year.
- **Large-Language-Model Inference and Serverless Schedule:** Implement baseline on ray and safetensor. Improve performance by bulk reading model from SSD. Plan to submit paper for OSDI this year.
- **Cerebras: 2D-Mesh AI Chip Discovery:** Seeking for chance on new hardware architecture. Recently we create a splendid new algorithm.

PUBLICATIONS

- **SC 21:** Symplectic structure-preserving particle-in-cell whole-volume simulation of tokamak plasmas to 111.3 trillion particles and 25.7 billion grids.

SKILLS

- **Computer Science:**
 - Very Skilled **C++**, **Python**, **Rust**; Familiar with Go, JavaScript, Latex
 - Know well about **CUDA**, **Intel ONEAPI**, **OpenMP** and other parallel programming skills
 - Know well about **LLVM**, join in LLVM Fforum online discussions frequently
 - Extensive work experience on Linux
 - Extensive experience on distributed system, distributed machine learning framework
 - Rich engineering experience, mastering various compilation tools, strong debugging ability
- **Physical & Math:**
 - Very Skilled Computational Fluid Dynamics and Molecular Dynamics
 - Know well about Numerical calculation method and Linear Algebra
 - Know well about Quantum mechanics and Quantum Electrodynamics

SPECIAL EXPERIENCE

Open Source Enthusiast: I have actively contributed to several renowned open-source projects, including GNOME, LAMMPS, LLVM, and others. Since 2019, I have consistently utilized GitHub as a platform to document my ideas and development notes.

Running a science-themed cafe: I used the income from my software development to buy a cafe near my school and named it Quantum Coffee. It offers students the opportunity to freely discuss scientific issues and promotes interdisciplinary collaboration.

UNICEF Charity Projects: I have been monthly to children's charities since 2019.