

Jixuan Ruan

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EDUCATION

University of California, San Diego(UCSD)
Computer Science and Engineering

Sep 2024 – Present
Advised by Prof. Yufei Ding

University of Science and Technology of China(USTC)
School of the Gifted Young

Sep 2020 – Jun 2024

PUBLICATIONS

1. [MICRO'25] Hezi Zhang, **Jixuan Ruan**, Yufei Ding, Ang Li, Travis Humble: OneAdapt: Resource-adaptive Compilation of Photonic One-way Quantum Computing.
2. [ASPLOS'25] **Jixuan Ruan**, Xiang Fang, Hezi Zhang, Ang Li, Travis Humble, Yufei Ding: PowerMove: Optimizing Compilation for Neutral Atom Quantum Computers with Zoned Architecture.
3. [ISCA'25] Xiang Fang, Keyi Yin, Yuchen Zhu, **Jixuan Ruan**, Dean Tullsen, Zhiding Liang, Andrew Sornborger, Ang Li, Travis Humble, Yufei Ding, Yunong Shi: CaliQEC: In-situ Qubit Calibration for Surface Code Quantum Error Correction.
4. [ASPLOS'24][Distinguished Artifact Award] Hezi Zhang, **Jixuan Ruan**, Hassan Shapourian, Ramana Rao Kompella and Yufei Ding: OnePerc: A Randomness-aware Compiler for Photonic Quantum Computing.
5. **Jixuan Ruan**, Hezi Zhang, Xiang Fang, Ang Li, Wesley C. Campbell, Eric Hudson, David Hayes, Hartmut Haefner, Travis Humble, Jens Palsberg, Yufei Ding: FluxTrap: Compiler Optimization for 2D Trapped-Ion Quantum Machines with SIMD Abstraction. In submission to HPCA'26
6. Keyi Yin, Xiang Fang, **Jixuan Ruan**, Hezi Zhang, Dean Tullsen, Andrew Sornborger, Chenxu Liu, Ang Li, Travis Humble, Yufei Ding: JazzSplit: Accurate and Fast Decoder for QLDPC-Code-Based QEC Architecture. In submission to HPCA'26
7. **Jixuan Ruan**, Hezi Zhang, Xiang Fang, Ang Li, Hyeonrak Choi, Yongshan Ding, Jason Cong, Yufei Ding: AdaptNA: Adaptive Hybrid of Circuit- and Measurement-based Quantum Computing for Neutral Atom Hardware. In submission to ASPLOS'26

HONORS AND AWARDS

Outstanding Student Scholarship Silver Award	Nov 2023
Outstanding Student Scholarship Gold Award	Nov 2022
China Collegiate Programming Contests for Girls Bronze Award	Nov 2021
The Second Prize of the Undergraduate Mathematics Contest	Dec 2021
Outstanding Student Scholarship Bronze Award	Sep 2021

RESEARCH EXPERIENCE

Bloqade Compiler Development QuEra Computing Inc.
Under the Supervisor of Phillip Weinberg and Roger Luo (summer intern) June 2025 – September 2025, Internship
I contributed to the development of the Bloqade compiler, creating a new placement dialect and a movement dialect to enable more flexible and efficient qubit scheduling. These dialects serve as the foundation for placement- and transport-aware compilation passes, improving both expressiveness and performance of Bloqade's compiler infrastructure. My work could be found on <https://github.com/QueraComputing>.

Randomness-Aware Compilation Framework Design

Under the Supervisor of Prof. Yufei Ding (summer intern)

University of California, San Diego

July 2023 – December 2023, Internship

We introduce a randomness-aware compilation framework designed to concurrently achieve scalability and efficiency. Our approach leverages an innovative combination of offline and online optimization passes, with a novel intermediate representation serving as a crucial bridge between them. Through a comprehensive evaluation, we demonstrate that this framework significantly outperforms the most efficient baseline compiler in a scalable manner, opening up new possibilities for realizing scalable photonic quantum computing.

My work could be found on <https://github.com/Scarlett0815/OnePerc>.

RESEARCH INTEREST

Quantum System Design

Quantum Error Correction

TEACHING EXPERIENCE

Computer Programming A

Organized by Prof. Jie Shen

University of Science and Technology of China

2023 Fall

Topic: C Programming, Introduction to Basic Programming Techniques

SKILLS

Programming: C / C++, Python, Verilog, Java, Pascal, Basic, C#

Languages: Chinese, English

PERSONAL HOBBIES

Sketching, Calligraphy, Piano, Novel Writing, Badminton, Jane Austen Enthusiast