

Jiahao Chen

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INTERESTS

Quantum Error Correction, Quantum Architecture, Quantum Information Theory

EDUCATION

Ph.D. in Artificial Intelligence

09/2025–Present

The Hong Kong University of Science and Technology (Guangzhou)

Supervisor: Xin Wang

M.S. in Computer Science and Technology

09/2022–06/2025

Harbin Institute of Technology, Shenzhen

Supervisor: Xuan Wang

B.S. in Computer Science and Technology

09/2018–06/2022

Xi'an Jiaotong University

PUBLICATIONS

Jiahao Chen, Zhengzhong Yi*, Zhipeng Liang, and Xuan Wang, *Improved belief propagation decoding algorithms for surface codes*, [IEEE Transactions on Quantum Engineering](#), 2025.

Zhengzhong Yi, Zhipeng Liang, **Jiahao Chen**, Kaixin Zhong, Et al., *Improved belief propagation decoding algorithm based on decoupling representation of Pauli operators for quantum stabilizer codes*, [Quantum Information Processing](#), 2025.

Zhengzhong Yi, Zhipeng Liang, Zicheng Wang, **Jiahao Chen**, Et al., *Recursive expansion of Tanner graph: a method to construct stabilizer codes with high coding rate*, [Physical Review A](#), 2024, 110(3): 032425.

Zhipeng Liang, Zhengzhong Yi, Fusheng Yang, **Jiahao Chen**, Et al., *High-dimensional quantum XYZ product codes for biased noise*, [arXiv:2408.03123](#)

Jiahao Chen, Shuhan Qi*, Yifan Li, Zeyu Dong, Et al., *KnobTree: Intelligent Database Parameter Configuration via Explainable Reinforcement Learning*, [arXiv:2406.15073](#)

HONORS

First-Class Graduate Scholarship

2023, 2022

Second Prize (6th Place out of 306 teams) in the 3rd CCF "Pilot Cup" General Track

2024

Second Prize (2nd Place overall) in the 2nd SpinQ Cup Quantum Computing Challenge

2023

Excellence Award (6th Place overall) in the Tencent Kaiwu AI Open Competition

2023

Outstanding League Cadres

2023

OTHER EXPERIENCES

Open-Source Project - QEC Memory Experiment Framework

08/2024 - 10/2024

Independently Developed

- Implemented a framework for comparison of the performance of different error correction codes and decoding algorithms, supporting code capacity, phenomenological, and circuit-level noise model.
- Developed and optimized BP decoding on GF(2) and GF(4) in C++, integrated error correction codes and decoding algorithms recently studied, provided interfaces for adding new classes, see [GitHub](#).

Teaching Assistant

- *Theory of computation*

Fall, 2023

SKILLS

Basics	<i>Quantum Computation and Quantum Information</i> (Nielsen and Chuang), Machine Learning
Utilities	Python (NumPy, PyTorch), C++, MATLAB, LaTeX
Language	English (IELTS 7.0), Mandarin (native)