

# Jiaqing Jiang

Graduate student

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## Research Interest

- Quantum information and Many-body systems

I am broadly interested in quantum algorithm and quantum complexity, especially in understanding potential quantum advantage for solving many-body systems, like estimating ground energy and preparing ground states & Gibbs states, which are fundamental questions in quantum chemistry and condense matter physics.

## Education

- 2020–Now **Ph.D. (in process)**, *California Institute of Technology*, Pasadena, USA.  
Computer Science, Advised by Thomas Vidick.
- 2017–2020 **M.Sc.**, *University of Chinese Academy of Science*, Beijing, China.  
Computer Science. Advised by Jialin Zhang.
- 2013–2017 **B.Sc.**, *Nankai University*, Tianjin, China.  
Applied Mathematics.

## Activities

- 2022.06–09 **Visiting graduate student**, *Simon's Institute*, Berkeley, USA.  
Mentor: Sandy Irani.
- 2023.01–02 **Visiting graduate student**, *Weizmann institute of science*, Rehovot, Israel.  
Mentor: Thomas Vidick.
- 2023.06–08 **Visiting graduate student**, *Simon's Institute*, Berkeley, USA  
Attending Program: Summer Cluster on Quantum Computing.
- 2024.02–04 **Visiting graduate student**, *Simon's Institute*, Berkeley, USA  
Attending Program: Quantum Algorithms, Complexity, and Fault Tolerance.

## References

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- [2] Jiaqing Jiang. Local hamiltonian problem with succinct ground state is ma-complete. *arXiv preprint arXiv:2309.10155*, 2023.
- [3] Jiaqing Jiang, Xiaoming Sun, Yuan Sun, Kewen Wu, and Zhiyu Xia. Structured decomposition for reversible boolean functions. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 2019.

- [4] Jiaqing Jiang, Xiaoming Sun, Shang-Hua Teng, Bujiao Wu, Kewen Wu, and Jialin Zhang. Optimal space-depth trade-off of cnot circuits in quantum logic synthesis. *Accepted by ACM-SIAM Symposium on Discrete Algorithms (SODA20)*, 2019.
- [5] Jiaqing Jiang, Kun Wang, and Xin Wang. Physical implementability of linear maps and its application in error mitigation. *Quantum*, 5:600, 2021.
- [6] Jiaqing Jiang and Xin Wang. Lower bound for the t count via unitary stabilizer nullity. *Physical Review Applied*, 19(3):034052, 2023.
- [7] Jiaqing Jiang, Jialin Zhang, and Xiaoming Sun. Quantum-to-quantum bernoulli factory problem. *Physical Review A*, 97(3):032303, 2018.
- [8] Feidiao Yang Yang, Jiaqing Jiang, Sun Sun, and Jialin Zhang. Revisiting online quantum state learning. *Accepted by AAAI Conference on Artificial Intelligence(AAAI20)*, 2019.