

Yiyi Cai

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Education

- 2026– **Stanford University**, Stanford, CA
Doctor of Philosophy, Computer Science
- 2025-26* **University of Cambridge**, Cambridge, UK
Master of Philosophy, Advanced Computer Science
Advisor: Tom Gur
- 2021-25 **California Institute of Technology**, Pasadena, CA
Bachelor of Science, Electrical Engineering
Senior Thesis: *"Improving Parameters of Asymptotically Good Quantum LDPC Codes via Stronger Product Expansion"* Advisor: John Preskill

Awards & Honors

- 2025 Gates Cambridge Scholarship
- 2025 Stanford Graduate Fellowship
- 2025 National Science Foundation Graduate Student Fellowship (declined)
- 2025 National Defense Science and Engineering Graduate Fellowship (declined)
- 2024 Outstanding Paper Prize at 2024 TQC
- 2023 Mellon Mays Undergraduate Fellowship
- 2023 Arthur R. Adams Summer Undergraduate Research Fellowship
- 2022 Doris Everhart Quantum Summer Undergraduate Research Fellowship

Research Experience

- 2025 – Student Researcher, Hon Hai Research Institute (Advisor: Min-Hsiu Hsieh)
- 2023 - 2025 Student Researcher, Institute of Quantum Information and Matter, California Institute of Technology, (Advisor: John Preskill)
- 2024 Quantum Computing Research Analyst, Global Technology Applied Research, JP-Morgan Chase & Co.
- 2022 Student Researcher, Quantum Machine Learning for High Energy Physics, California Institute of Technology (Advisor: Maria Spiropulu)
- 2021 - 2023 Missions Operations & Ground Data Science Intern, Lunar Trailblazer Mission, NASA & California Institute of Technology

*Expected.

Publications

Conference Proceedings

- **Yiyi Cai**, Yu Tong, and John Preskill. [Stochastic Error Cancellation in Analog Quantum Simulation](#). In *19th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2024)*.
- Elena Scire, Lee Bennett, Judy Adler, Sergio Fajardo-Acosta, Robert Fogg, Elise Furlan, Jacob Llamas, Peter Bahariance, **Yiyi Cai**, Trinity Chung, Garni Gharibian, Emily Hu, Julianna Jin, Matteo Kimura, Aaron Lee, Michael Mansour, Mahak Mathur, Andy Sun, Jasmine Terrones, Jingchao Zhong, and Bethany Ehlmann. [Lunar trailblazer ground system development](#). *Proc. SPIE 13098, Observatory Operations: Strategies, Processes, and Systems X, 130981K (2024)*.

Preprints

- Akshar Ramkumar, **Yiyi Cai**, Yu Tong and Jiaqing Jiang. [High-Temperature Fermionic Gibbs States are Mixtures of Gaussian States](#). arXiv preprint arXiv:2505.09730.
- **Yiyi Cai**. [Improving Parameters of Asymptotically Good Quantum LDPC Codes via Stronger Product Expansion](#). Senior Thesis (Major).

Talks & Seminars

- "High-Temperature Fermionic Gibbs States are Mixtures of Gaussian States"
Academia Sinica; Aug. 2025
- "Stochastic Error Cancellation in Analog Quantum Simulations"
 - Theory of Quantum Computation, Communication and Cryptography; Sep. 2024
 - Mellon Mays Undergraduate Fellowship Western Regional Conference; Nov. 2023
 - Caltech Summer Undergraduate Research Fellowship Seminar; Aug. 2023
- "Lunar trailblazer ground system development"
SPIE Astronomical Telescopes + Instrumentation; Jun., 2024
- "Towards Producing realistic LHC QCD simulation using Quantum Generative Adversarial Network through a Quantum Circuit Ansatz Search"
Caltech Summer Undergraduate Research Fellowship Seminar; Oct. 2022

Teaching

The Coding School

Teaching Assistant & Curriculum Developer

Summer 2025

Quantum Summer Institute

California Institute of Technology

Teaching Assistant

Spring 2025	IDS 157 Statistical Inference
Fall 2025	EE 111 Signal-Processing Systems and Transforms
Spring 2024	EE 10b Embedded Systems
Winter 2024	EE 10a Digital Logic
Fall 2024	EE 55 Mathematics of Electrical Engineering

Last updated: August 11, 2025