JINGE BAO

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School of Informatics, University of Edinburgh
#3.05, Informatics Forum, 10 Crichton Street, Edinburgh, EH8 9AB

EDUCATION

National University of Singapore — Singapore
Ph.D. in Computer Science — *Jan 2020 - Jun 2024*
Affiliated with Centre for Quantum Technologies (CQT).
Thesis: Circuit-based quantum algorithms.

Sichuan University — Chengdu, China
Bachelor in Computer Science — *Sep 2015 - Jun 2019*
GPA 3.92/4.00, rank 3/293.

RESEARCH INTEREST

Quantum property testing, quantum learning theory, quantum computational complexity, quantum computational cryptography, and AI for quantum.

EXPERIENCE

University of Edinburgh — Edinburgh, UK
Senior Researcher — *Jan 2025 - Present*

Centre for Quantum Technologies — Singapore
Research Fellow — *May 2024 - Jan 2025*

IHPC, Agency for Science, Technology and Research (A*STAR) — Singapore
Research Intern — *May 2024 - Jan 2025*

Zhuoshi Trading — Beijing, China
Strategy Research Intern — *Dec 2018 - Jan 2020*

PAPERS

1. **Jinge Bao**, Minbo Gao, Qisheng Wang. *On Estimating the Quantum Tsallis Relative Entropy.* ArXiv preprint arXiv:2510.00752.
2. Jonathan Allcock, **Jinge Bao**, Aleksandrs Belovs, Troy Lee, Miklos Santha. *On the quantum time complexity of divide and conquer.* In the proceedings of the 52nd International Colloquium on Automata, Languages, and Programming (ICALP 2025) No. 70; pp. 70:1–70:20.
3. Jonathan Allcock, **Jinge Bao**, João F. Doriguello, Alessandro Luongo, Miklos Santha. *Constant-depth circuits for Boolean functions and quantum memory devices using multi-qubit gates.* Quantum Journal 2024-11-20, volume 8, page 1530.
4. João F. Doriguello, Alessandro Luongo, **Jinge Bao**, Patrick Rebentrost, and Miklos Santha. *Quantum algorithm for stochastic optimal stopping problems with applications in finance.* In the proceedings of the 17th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2022) No. 2; pp. 2:1–2:24.
5. **Jinge Bao**, Francisco Escudero Gutiérrez. *Learning junta distributions, quantum junta states, and* QAC^0 *circuits.* In the proceedings of the 43rd International Conference on Machine Learning (ICML 2026).
6. Adam Wesołowski, **Jinge Bao**. *Quantum algorithms and lower bounds for eccentricity, radius, and diameter in undirected graphs.* ArXiv preprint 2502.20148. Poster in the 20th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2025).
7. **Jinge Bao**, Patrick Rebentrost. *Fundamental theorem for the pricing of quantum assets.* ArXiv preprint 2212.13815.
8. Yuqi Li, Zhuohang Shi, Haitao Ma, Li Shen, **Jinge Bao**, Yunlong Xiao. *Language Model for Large-Text Transmission in Noisy Quantum Communications.* ArXiv preprint 2504.20842. Poster in the 8th International Conference on Quantum Techniques in Machine Learning (QTML 2024).

TALKS

- **On quantum time complexity of divide and conquer**
  - SIAM Conference on Optimization, Edinburgh, UK *June, 2026*
  - Conference ICALP 2025, Aarhus, Denmark. *Jul, 2025*
  - Conference QIP 2024, Taipei, Taiwan. *Jan, 2024*
  - Q.Inc Seminar, IHPC, A*STAR, Singapore. *Apr, 2024*
  - Math CS Seminar, IQC, Waterloo, Canada. *Mar, 2024*
  - Algorithms and complexity Seminar, IRIF, Paris, France. *Nov, 2024*
- **Learning junta distributions, quantum junta states, and QAC^0 circuits**
  - Conference AQIS 2025. Hong Kong, China SAR. *Aug, 2025*
  - Quantum algorithms and complexity workshop, Edinburgh, UK. *Jun, 2025*
- **Constant-depth circuits for Boolean functions and quantum memory devices using multi-qubit gates**
  - Conference TQC 2024, Okinawa, Japan. *Sep, 2024*
  - Conference QTML 2023, CERN, Switzerland. *Nov, 2023*
- **Quantum algorithm for stochastic optimal stopping problems with applications in finance**
  - Conference TQC 2022, Urbana-Champaign, Illinois, USA. *Jul, 2022*

FELLOWSHIP & AWARDS

- **Gold Reviewer**, ICML 2026. *June 2026*
- **Second place**, Pennylane Singapore Quantum Cup. *Aug 2024*
- **First place**, Horizon Quantum Hackathon. Dec 2023
- **CQT PhD Scholarship**, National University of Singapore. *Jan 2020*
- **China national scholarship.** (highest scholarship for undergraduate students) (twice) *Sep 2016, 2017*
- **Bronze medal**, ACM-ICPC Asia Regional Contest. *Oct 2017*
- **First class scholarship**, Sichuan University. (twice) *Sep 2016, 2017*
- **Bronze medal**, Collegiate Computer Science and Programming Contest. *Apr 2017*

ACADEMIC SERVICES

- **External reviewers**:
  - Journal: PRX, PRX Quantum, PRL, Quantum Journal, and Frontier of Computer Science.
  - Conference:
    - Quantum: QTML (2022, 2024, 2025), TQC (2023, 2024, 2025, 2026), QIP (2024, 2025, 2026), AQIS (2025), QCE (2026)
    - Theoretical computer science: ITCS (2025), STACS (2025), ICALP (2026), ESA (2026),
    - Artificial Intelligence & Machine Learning: ICLR (2026), ICML (2026), and NeurIPS (2026)
- **Organizer committee**:
  - Quantum Algorithm and Complexity Workshop, part of Quantum Fringe 2025, UK.
  - QCamp 2023, Centre for Quantum Technologies, Singapore.

TEACHING

- **Lecturer**:
  - Quantum Information CDT Spring School *May, 2026*
- **Teaching Assistant (NUS)**:
  - CS4268 Quantum Computing
  - CS5330 Randomized Algorithms
  - CS5339 Theory and Algorithms for Machine Learning

PROFESSIONAL REFERENCES

- Prof. Miklos Santha
  CQT, NUS & IRIF, CNRS
  cqtms@nus.edu.sg
- Prof. Patrick Rebentrost
  CQT & SoC, NUS
  cqtfpr@nus.edu.sg
- Prof. Frédéric Magniez
  IRIF, CNRS
  frederic.magniez@irif.fr
- Prof. Elham Kashefi
  University of Edinburgh & LIP6, CNRS
  ekashefi@exseed.ed.ac.uk
- Prof. Mina Doosti
  University of Edinburgh
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- Dr. Yunlong Xiao
  IHPC, A*STAR
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