Tailong Xiao

Assistant Professor

School of Automation and Intelligent Sensing, Shanghai Jiao Tong University

Institute for Quantum Sensing and Information Processing (QSIP)

State Key Laboratory of Photonics and Communications

Hefei National Laboratory (Shanghai Research Center for Quantum Sciences)

tailong_shaw@sjtu.edu.cn — Google Scholar — GitHub

Office: SEIEE Building 5-205, Shanghai Jiao Tong University, Shanghai, China

Research Interests

Quantum Artificial Intelligence (QAI); Machine Learning; Intelligent Quantum Sensing; AI-enhanced Optical Computing and Imaging.

Academic Appointments

Oct. 2023–Present **Assistant Professor**, SJTU, Shanghai, China.

Education

2018-06 **B.E.**, Communication Engineering, Central South University, China.

2023-06 **Ph.D.**, Information and Communication Engineering, SJTU, China.

Selected Publications

1. Xu H, **Xiao T***, Huang J, et al. Toward Heisenberg Limit without Critical Slowing Down via Quantum Reinforcement Learning. *Physical Review Letters*, 2025, 134(12): 120803.

2. **Xiao, T**, Zhai, X., Huang, J. et al. Quantum deep generative prior with programmable quantum circuits. *Communications Physics*, 2024, 7: 276. DOI: 10.1038/s42005-024-01765-9.

3. **Xiao, T**, Zhai, X., Wu, X. et al. Practical advantage of quantum machine learning in ghost imaging. *Communications Physics*, 2023, 6: 171. DOI: 10.1038/s42005-023-01290-1.

4. **Xiao, T**, Fan, J. & Zeng, G. Parameter estimation in quantum sensing based on deep reinforcement learning. *npj Quantum Information*, 8, 2 (2022). DOI: 10.1038/s41534-021-00513-z.

5. **Xiao, T**, Huang, J., Li, H., Fan, J., Zeng, G. Intelligent certification for quantum simulators via machine learning. *npj Quantum Information*, 8, 138 (2022). DOI: 10.1038/s41534-022-00649-6.

* indicates corresponding author. Full list: Google Scholar.

Teaching

- **Engineering Practice and Technological Innovation II (EE0503)**, Spring 2025. Topic: *An Introduction to Quantum Artificial Intelligence* (Undergraduate).

Research Grants & Projects

- **National Key R&D Program of China** (Dec. 2025–Nov. 2030), 2,500,000 CNY.
- **NSFC Young Scientists Fund** (2025–2027), 300,000 CNY.
- **Lenovo–SJTU Joint Lab Project** (2024–2025), 600,000 CNY.
- **SJTU Young Scholars Project** (2023–2026), 50,000 CNY.

- **CCF–Boson Quantum Innovation Fund** (2025.03–2025.08), 150,000 CNY.
- **National Key Laboratory Open Research Program** (2025–2026), 100,000 CNY.

Academic Service

Professional Roles

- Executive Committee Member, CCF Technical Committee on Quantum Computing.

Editorial Work

- Guest Editor, Special Issue "Quantum Computing and Quantum Information Processing", *Entropy* (MDPI).
  Special issue link.
- Editorial Board Member, *Scientific Reports*.

Reviewer

- Physical Review Letters / Applied / Research / A; PRX Quantum.
- New Journal of Physics; Quantum Science and Technology; Journal of Physics A; Machine Learning: Science and Technology; European Journal of Physics.
- npj Quantum Information; Scientific Data; Scientific Reports; Quantum Information Processing.
- Optica Quantum; Optics Express; Optics Letters.

Honors & Awards

- National Scholarship (China), 2017.
- Exemplary Outstanding Student, 2017.
- Hunan Provincial Outstanding Graduate, 2018.
- Yangjiachi Scholarship, 2019.
- CCF Sinan Cup, National Second Prize, 2021.
- First-class Scholarship of State Key Laboratory (Photonics and Communications), 2022.
- CCF Sinan Cup, National First Prize, 2022.
- Outstanding Graduate, 2023.
- CCF Outstanding Doctoral Dissertation in Quantum Computing, 2024.