Giacomo Franceschetto

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Education

Ph.D. in Quantum information theory
Dec 2023 - present

The Institute of Photonic Sciences (ICFO), Barcelona (ES)

Advisors: Antonio Acín and Pere Mujal

- Research on measurement-induced quantum effects in quantum algorithms and certification protocols.
- Produced 3 first-author publications, including a paper in Physical Review X; presented work at 10+ conferences and seminars.
- Co-supervised a bachelor thesis student, contributed to open-source quantum software (Qibo, OpenQAOA), and participated in outreach initiatives (CQA Research Symposium, BIYSC, Saló de l'ensenyament).

M.Sc. in Physics of Data
Oct 2021 - Oct 2023

University of Padova (IT) – GPA: 29.54/30, Final Grade: 110/110 with honors

- Exchange semester: Leopold-Franzens Universität Innsbruck (AT) – MSc in Quantum Sciences.

B.Sc. in Physics
Oct 2018 - Jul 2021

University of Padova (IT) – GPA: 29.30/30, Final Grade: 110/110 with honors

Work Experience

Rigetti Computing, Berkley (US)
Jun 2026 - Sep 2026

Quantum Algorithms Intern (Remote)

Working on learning open-system quantum dynamics to benchmark superconducting quantum devices.

Quandela, Massy (FR)

Quantum Applications Engineer (Remote) *Sep 2023 - Dec 2023*

- Developed a software framework to tackle general reinforcement learning tasks with quantum optical projective simulation on single-photon-based quantum computers. Contributed to Perceval, Quandela's open source framework to program photonic quantum computers.

Quantum Applications Engineer Intern *Mar 2023 - Sep 2023*

- Implemented a task-tailored version of the quantum optical projective simulation algorithm for a test bed reinforcement learning task on a single-photon-based quantum computer.

Institute for Quantum Optics and Quantum Information (IQOQI), Innsbruck (AT)
Oct 2022 - Feb 2023

Student Intern

Group: Superconducting Quantum Circuits – Gerhard Kirchmair

- Conducted characterization measurements on transmon qubits in the dispersive regime.

The Institute of Photonic Sciences (ICFO), Barcelona (ES)
Jul 2022 - Sep 2022

Research Intern

Group: Quantum Information Theory – Antonio Acín, *Supervisor*: Dr. Márcio M. Taddei

- Analysed and developed different QUBO encodings of an optimisation problem of industrial interest with the perspective of then solving it with a quantum annealer.

Honors

"La Caixa" Foundation Incoming Fellowship. Granted funding to conduct PhD studies, acceptance rate: 5%.

Empowering the Future Experts in Quantum Science and Technology for Europe (EFEQT) 2022/23. Among the 25 Master students selected to perform a one year training programme in Quantum Science and Technology.

Mille e una lode Scholarship 2019, 2020, 2021. Awarded by University of Padova to top 3% students.

Lead the Future Mentorship (LTF). Selected to be mentee for LTF, a leading mentorship non-profit organization for students in STEM, with an acceptance rate below 20%.

Publications

G. Franceschetto*, E. Pagliaro*, L. Pereira, L. Zambrano, A. Acín. **Hamiltonian learning via quantum Zeno effect**. , 2025. [arXiv]

G. Franceschetto, M. Płodzień, M. Lewenstein, A. Acín, P. Mujal. **Harnessing quantum backaction for time-series processing**. *Phys. Rev. X 16, 021002*, 2026. [arXiv, DOI]

G. Franceschetto, A. Ricou. **Demonstration of quantum projective simulation on a single-photon-based quantum computer**. *Phys. Rev. A 110, 062613*, 2024. [arXiv, DOI]

A. Makarov, C. Pérez-Herradón, G. Franceschetto et al. **Quantum Optimization Methods for Satellite Mission Planning**. *IEEE Access, vol. 12, pp. 71808-71820*, 2024. [arXiv, DOI]

A. Makarov, M. M. Taddei, E. Osaba, G. Franceschetto et al. **Optimization of Image Acquisition for Earth Observation Satellites via Quantum Computing**. *Accepted paper at IDEAL 2023*, 2023. [arXiv, DOI]

Talks and Posters

Hamiltonian learning via quantum Zeno effect.

- *Contributed talk at SQST 2026 - Siam Quantum Science and Technology Conference, Jomtien (Chonburi, TH), 18 May 2026*
- *Contributed talk at CQA Research Symposium, Castelldefels (Barcelona, ES), 19 March 2026*
- *Invited talk at ICFO - Quantum Optics Theory group seminar, Castelldefels (Barcelona, ES), 23 February 2026*
- *Poster at QIP 2026, Riga (LV), 27 January 2026*
- *Contributed talk at HPCQC 2025, Bologna (IT), 16 December 2025*
- *Invited talk at Quantum Information seminar, University of Innsbruck, Innsbruck (AT) 10 December 2025*
- *Invited talk at PYSQT Seminar series on quantum technologies for young researchers, Online, 3 December 2025*
- *Invited talk at Physics of Data Spring Workshop, University of Padova, Venice (IT), 23 May 2024*

Harnessing quantum backaction for time-series processing.

- *Invited talk at Quantum Theory (University of Palermo) group seminar, Online, 11 June 2026*
- *Invited talk at Quantum Software Lab (University of Edinburgh) group seminar, Online, 05 May 2026*
- *Invited talk at DIPC seminar, Donostia – San Sebastián (ES), 17 November 2025*
- *Contributed talk at IQIS 2025 - Italian Quantum Information Science Conference, Bologna (IT), 9 September 2025*
- *Poster at QCTiP 2025 - Quantum Computing Theory in Practice, Berlin (DE), April 2025*
- *Contributed talk at Pyrenees Winter School in Quantum Information and Quantum Science, Setcases (Girona, ES), 26 February 2025*
- *Best poster award at ICFO annual poster session 2024, December 2024*
- *Poster at ICE-9 Quantum Information in Spain, Puerto de la Cruz (Tenerife, ES), November 2024*

Demonstration of quantum projective simulation on a single-photon-based quantum computer.

- *Contributed talk at ICE-9 Quantum Information in Spain, Puerto de la Cruz (Tenerife, ES), 14 November 2024*
- *Invited talk at Quantum Information seminar, University of Innsbruck, Innsbruck (AT), 30 October 2024*
- *Invited talk at IFISC Quantum meetings, University of the Balearic Islands, Online, 21 May 2024*
- *Invited talk at Open Problems in Quantum Machine Learning, University of Milan, Milan (IT), 24 November 2023*