

# Giacomo Franceschetto

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## Interests

Quantum Information Theory, Quantum Computing, Artificial Intelligence

## Education

### Ph.D. - "la Caixa" Foundation Fellow

Dec 2023

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

*Group: Quantum Information Theory – Antonio Acín*

### M.Sc. in Physics of Data

Oct 2021 - Oct 2023

*University of Padova – GPA: 29.54/30, Final Grade: 110/110 with honors*

- Exchange semester: Leopold-Franzens Universität Innsbruck – MSc in Quantum Sciences.
- Core Lectures: Advanced Quantum Information, Mathematics and Computation, Neural Networks and Deep Learning.

### B.Sc. in Physics

Oct 2018 - Jul 2021

*University of Padova – GPA: 29.30/30, Final Grade: 110/110 with honors*

- Elective Lectures: Computational Physics, Object Oriented Programming, Quantum Information Theory.

## Work Experience

### 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.

*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 Iode 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, A. Ricou. **Demonstration of quantum projective simulation on a single-photon-based quantum computer.**, 2024. [[arXiv](#)]

A. Makarov, C. Pérez-Herradón, G. Franceschetto et al. **Quantum Optimization Methods for Satellite Mission Planning.** *in IEEE Access*, 2024. [[arXiv](#)]

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](#)]

## Talks

**Quantum Zeno effect as a reshaping tool for Hamiltonian learning.** *Invited talk at Physics of Data Spring Workshop, University of Padova, 23 May 2024.*

**Demonstration of quantum projective simulation on a single-photon-based quantum computer.** *Invited seminar at IFISC Quantum meetings, University of the Balearic Islands, 21 May 2024.*

**Demonstration of quantum projective simulation on a single-photon-based quantum computer.** *Invited talk at Open Problems in Quantum Machine Learning, University of Milan, 24 November 2023.*