

Francesco Battistel

Curriculum vitae

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Work

2022 **Senior Quantum Application Theorist.**
Qblox, Delft, Netherlands

Education

- 2017–2021 **PhD Student in Quantum Computing Theory.**
QuTech, Delft University of Technology, Delft, Netherlands
- Multiple projects in close contact with the experiments. Superconducting quantum computing. Realistic noise sources, quantum error correction and circuit quantum electro-dynamics. Simulation skills. Developing and managing a project.
 - Thesis: *Mitigating noise and leakage in superconducting quantum computing.*
Supervisor: Barbara Terhal.
- 2015–2017 **Elite Master Program in Mathematical and Theoretical Physics.**
LMU & TUM, Munich, Germany
- Thesis: *General Quantum Error Correction for MERA Codes.*
Supervisor: Robert König.
- 2012–2015 **Bachelor Degree in Physics.**
Department of Physics, Università degli Studi di Trieste, Trieste, Italy
- Thesis: *Black Hole Entropy and Thermodynamics.*
Supervisor: Stefano Ansoldi.

Experience

- 2020 **Teaching Assistant for the Master course “Quantum Hardware”.**
Delft University of Technology, Delft, Netherlands
- 2018, 2019, 2020 **Teaching Assistant for the Master course “Modelling of Superconducting Quantum Devices”.**
Delft University of Technology, Delft, Netherlands
- Oct-Feb 2017 **Tutor for the Bachelor Course “T0: Rechenmethoden”.**

- LMU, München, Germany
- Sept–Oct 2014 **Internship: Ultra-High Vacuum Technologies and Scanning Tunneling Microscopy.**
TASC-INFM National laboratory, Area Science Park, Basovizza, Trieste, Italy
- July 2014 **Internship: Statistical Study of the Dutch Energy Market for Greenhouses.**
Kwekerij De Kabel, Delft, Netherlands
- Sept 2013 **Working experience in a Turkish textile factory.**
Menderes Tekstil, Denizli, Turkey

Scholarships

- 2012-2015 **Collegio per le Scienze “Luciano Fonda”**, Trieste, Italy.

Spoken Languages

Italian	Mother tongue.	Dutch	Level B2.
English	Level C1 (TOEFL iBT).	German	Level A1.

Computer Skills

Python, Mathematica, Fortran, IDL, Root, ECDL, \LaTeX

Additional Information

- Scores **GRE (Graduate Record Examinations)**, Physics Subject Test, Score: 990/990.
Awards **Olympics of Chemistry**, 5th in the Italian National Final 2012, category B.

Publications

- J. F. Marques, B. M. Varbanov, M. S. Moreira, H. Ali, N. Muthusubramanian, C. Zachariadis, F. Battistel, M. Beekman, N. Haider, W. Vlothuizen, A. Bruno, B. M. Terhal, L. DiCarlo. *Logical-qubit operations in an error-detecting surface code*. Nature Physics 10.1038/s41567-021-01423-9 (2021).
- F. Battistel, B. M. Varbanov, B. M. Terhal. *Hardware-efficient leakage-reduction scheme for quantum error correction with superconducting transmon qubits*. 10.1103/PRXQuantum.2.030314 (2021).
- V. Negîrneac, H. Ali, N. Muthusubramanian, F. Battistel, R. Sagastizabal, M. S. Moreira, J. F. Marques, W. J. Vlothuizen, M. Beekman, C. Zachariadis, N. Haider, A. Bruno, L. DiCarlo. *High-fidelity controlled-Z gate with maximal intermediate leakage operating at the speed limit in a superconducting quantum processor*. 10.1103/PhysRevLett.126.220502 (2020).
- B. M. Varbanov, F. Battistel, B. M. Tarasinski, V. P. Ostroukh, T. E. O'Brien, L. DiCarlo, B. M. Terhal. *Leakage detection for a transmon-based surface code*. Nature Partner Journal Quantum Information 10.1038/s41534-020-00330-w (2020).
- J. Helsen, F. Battistel, B.M. Terhal. *Spectral Quantum Tomography*. Nature Partner Journal Quantum Information 10.1038/s41534-019-0189-0 (2019).

- M. A. Rol, F. Battistel, F. K. Malinowski, C. C. Bultink, B. M. Tarasinski, R. Vollmer, N. Haider, N. Muthusubramanian, A. Bruno, B. M. Terhal, L. DiCarlo. *Fast, High-Fidelity Conditional-Phase Gate Exploiting Leakage Interference in Weakly Anharmonic Superconducting Qubits*. 10.1103/PhysRevLett.123.1205022 (2019).