

# Giovanni MINUTO



## PROFILE

Innovative and passionate **Algorithms Developer** with over 3 years of experience in the Machine Learning industry. Currently working at **Pasqal** and completing a **Ph.D.** at Sapienza University. Specializing in quantum-enhanced solutions for **machine learning**, with three publications on gradient optimization techniques.

## CONTACT DETAILS

@minutogiovanni@gmail.com  
☎ +39 373 5495 348  
🐙 GitHub  
👤 Google Scholar

## PERSONAL INFORMATION

- Address: Turin, Italy
- Citizenship: Italian
- Year of birth: 1997
- Languages: English (C1), Italian (native)

## SKILLS

- **Programming Languages:** Python, Bash, C/C++, MATLAB/Octave, LaTeX
- **Machine Learning & Data Science Libraries:** PyTorch, Scikit-Learn, TensorFlow, Keras, NumPy
- **Quantum Computing Libraries:** Qiskit, PennyLane, Cirq, Qadence
- **Development Tools & Utilities:** Git, MLFlow, Docker, Multiprocessing, CI/CD pipelines
- **Methodologies & Practices:** Agile/Scrum, DevOps

## WORK EXPERIENCE

2024.07–TODAY

QUANTUM ALGORITHMS DEVELOPER, *Pasqal, Netherlands*

- Built, trained, and evaluated ML models for expressivity, robustness, and trainability in industry-relevant use cases.
- Led a dedicated projects vertical from design to deployment.
- Developed and maintained multiple libraries for machine learning applications.
- Applied Physics Informed Neural Networks (PINNs), Quantum Kernel Models, and Quantum Neural Networks to optimization problems.

2023–2025

TEACHING ASSISTANT, *Polytechnic School of Genoa, Italy*

- Courses: *Fundamentals of Quantum Computing; Introduction to Quantum Information and Computation for Robotics.*

## EDUCATION

2022–TODAY

PHD IN QUANTUM MACHINE LEARNING *Sapienza, University of Rome*

- Research focus: Quantum Machine Learning.

2020–2022

MASTER IN PHYSICS *University of Genoa*

- Thesis: *Physics Simulations with Quantum Computers* (Grade: 110/110).

2016–2020

BACHELOR OF SCIENCE IN PHYSICS *University of Genoa*

- Thesis: *Josephson junctions and superconducting materials* (Grade: 96/110).

## PUBLICATIONS

2025

- *A Novel Approach to Reduce Derivative Costs in Variational Quantum Algorithms, (Journal of Physics A: Mathematical and Theoretical, IOP).*
- *Resource reduction for variational quantum algorithms by non-demolition measurements, (Preprint).*

2023

- *Quantum gradient evaluation through quantum non-demolition measurements, (European Physical Journal D, Springer).*

## OPEN SOURCE LIBRARIES

QADENCE:

- A simple interface to build digital-analog quantum programs on neutral atom devices.

QUANTUM NON-DEMOLITION MEASUREMENT ALGORITHM:

- Library for the QNDM algorithm, supporting gradient computation in quantum circuits.

## CONFERENCES

04/2024

- *Joint ICTP-WE Heraeus School and Conference on Frontiers at the Intersection of Quantum Simulation and Machine Learning, Trieste, Italy.*

06/2023

- *Topics in Modern Machine Learning DIBRIS, University of Genoa, Genoa.*

02/2023–04/2023

- *Quantum Information Theory 2023 ICMAT, Autonomous University of Madrid, Madrid, Spain.*