

MATTEO ROBBIATI

Doctoral student in Physics

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📍 1, Rue de la petite vie, Saint Genis Pouilly

🔍 RESEARCH INTERESTS

- > **Machine Learning** models and their physical application: supervised and unsupervised ML, with a strong focus on **images** recognition and generation;
- > **Quantum computation**: Variational Quantum Circuits, Quantum Machine Learning (QML) and QML HEP applications, hardware-compatible optimization techniques;
- > **Computational Physics**: numerical simulation, Monte Carlo integration.
- > **Cosmology** and **astrophysics**;

🎓 EDUCATION

2022 - current **Ph.D. candidate at CERN**, enrolled with University of Milan.
2019 - 2022 **Master degree in Physics**, University of Milan, Milan, Italy.
2015 - 2019 **Bachelor degree in Physics**, University of Milan, Milan, Italy.

📁 EXPERIENCE

Jun. 2022 Sep. 2016	Math and Physics lessons, PRIVATE LESSONS, <ul style="list-style-type: none">> Private lessons in math and physics to high school students. <div>simplification of concepts exposition self-check</div>
Dec. 2021 Mar. 2021	Research and data analysis, COOPERATIVE “LA VALLE DI EZECHIELE”, <ul style="list-style-type: none">> Studying the impact of social cooperatives in getting prisoners back to work and lowering recidivism rates.> Study of “<i>Social Impact Bonds</i>” as a financial instrument to support social welfare.> Production of an explanatory report on the current conditions of the Italian prison system. <div>Data analysis networking social impact</div>

📖 PUBLICATIONS

Papers

2022 Matteo Robbiati, Juan Manuel Cruz-Martinez and Stefano Carrazza: *Determining probability density functions with adiabatic quantum computing*, arXiv:2303.11346

Proceedings of Science

2022 Matteo Robbiati, Stavros Efthymiou, Andrea Pasquale and Stefano Carrazza: *A Quantum Analytical Adam Descent through Parameter Shift Rule using Qibo*, in 41st International Conference on High Energy Physics, (2022). arXiv:2210.10787

🏛️ PARTECIPATION IN RESEARCH GRANTS

2021 – 2022 **Collaborator**, *Automatic Monte Carlo on GPU*, Linea 2A, University of Milan.

🖥️ PARTECIPATION IN CONFERENCES AND WORKSHOPS

Nov. 2022 **QT4HEP**, CERN
Mar. 2023 **Openlab Technical Workshop**, CERN

🗣️ TALKS

Jen. 2023 **Introduction to quantum computation with qibo**, QTI-TH Forum, CERN
Jen. 2023 **Introduction to quantum machine learning using qibo**, QTI-TH Forum, CERN
Feb. 2023 **Introduction to quantum computation with qibo**, Nikhef
Mar. 2023 **Density estimation via quantum adiabatic computing**, QTI-TH Forum, CERN

OUTREACH AND VOLUNTEERING

- 2022 Scout educator, AGESCI,
2016 > ability to interact constructively with the group, problem solving.
team-work adaptation interplay relationship challenge
- 2022 Volunteer, APWOYO ONLUS,
2019 > management of stressful situations, empathy.
team-work empathy

SKILLS

GitHub <https://github.com/MatteoRobbiati>.
Programming C/C++, Python, HTML, CSS, Nextjs, BASH, \LaTeX .
Frameworks TensorFlow, Keras, Root, Qibo, PennyLane, MPI.
Data frame Pandas.
OS Linux, Windows.
Languages Fluent in english and italian.

Last update
March 24, 2023

Matteo Robbiati