# Andrea Cacioppo

Curriculum vitae - July 8 2025

Email  [andrea.cacioppo@uniroma1.it](mailto:andrea.cacioppo@uniroma1.it)

LinkedIn  [LinkedIn](#)

**Download PDF**

I am a physicist with 6+ years of experience in machine learning. Currently a PhD candidate in physics (final year), I am working on quantum computing, machine learning and their intersection. I am also consulting companies, developing custom models or optimizing existing ones.

## Education

**Nov 2022 - pres.**

**PhD in Physics**, Sapienza University of Rome, Italy

Topics: quantum generative models and physics-informed optimization algorithms

Group: Fisica AI&QC group (https://sites.google.com/a/uniroma1.it/stefanogiagu/fisicaAI)

Supervisors: Stefano Giagu (https://stefanogiagu.site.uniroma1.it/home), Fabio Sciarrino (https://www.quantumlab.it/principal-investigator/)

**Nov 2020 - Nov 2021**

**PhD in Computer Engineering**, Technical University of Munich, Germany

Topics: classical-quantum compound channels and algorithms for the automatic generation of quantum graph states

Group: Theoretical quantum system design group (https://www.ce.cit.tum.de/en/lti/tqsd/)

Supervisors: Janis Nötzel (https://www.professoren.tum.de/en/tum-junior-fellows/n/noetzel-janis), Jonathan Finley (https://www.professoren.tum.de/en/finley-jonathan)

**Oct 2016 - May 2020**

**M.Sc. in Physics**, Sapienza University of Rome, Italy

Thesis: "Deep learning for the parameter estimation of tight-binding Hamiltonians"

Supervisors: Stefano Giagu (https://stefanogiagu.site.uniroma1.it/home), Stefan Bauer (https://cifar.ca/bios/stefan-bauer/)

Grade: 109/110

**Sept 2013 - Oct 2018**

**B.Sc. in Physics**, Sapienza University of Rome, Italy

Thesis: "Hidden Markov model"

Supervisor : Luciano Pietronero (http://www.lucianopietronero.it)

Grade: 110/110 with honors

## Work experience

**Jan 2022 - pres.**

**ML Consulting**, Individual clients, Italy

Topics: training NNs to solve PDEs in finance - implementation of diffusion models - training NNs on incomplete datasets - invoice reconciliation using an online LLM

**Nov 2024 - Mar. 2025**

**ML Consulting**, Grid + (https://www.gridplus.it), Rome, Italy

Topic: Automatic analysis of legal documents and anomaly detection

**Jan 2022 - Nov 2024**

**Tutoring**, Individual clients, Italy

Topics: mathematics, physics and computer science for university students

**Sep 2023 - Nov 2023**

**ML Consulting**, Hypercube SA (https://www.hypercube.eco), Lugano, Switzerland

Topic: application of ML techniques to the detection of time series anomalies

**Dec 2022 - Aug 2023**

**ML Consulting**, Primis Group SRL (https://www.primisgroup.com), Milan, Italy

Tasks: determine best ML solutions tailored to LiDAR and satellite data, design of an anomaly detection algorithm for LiDAR data (contract of Rete Ferroviaria Italiana SPA)

**Nov 2020 - Nov 2021**

**Tutoring**, Technical University of Munich, Germany

Task: assisting students of the "Quantum networking" class

**Sep 2019 - Oct 2020**

**Research Internship**, Max Planck Institute for Intelligent Systems, Tübingen, Germany

Topics: Deep learning for estimating tight-binding Hamiltonians, quantum machine learning models and their connection with kernel methods

## Awards and grants

**Nov 2023 - Nov 2024**

**Research grant**, Sapienza University of Rome, Italy

"Development of quantum machine learning algorithms" - 1000 €

**Oct 2016**

**Excellence program for honor students**, Sapienza University of Rome, Italy

## Talks

**Oct 2024**

**Quantum Computing** @ INFN, Padova, Italy, Talk

"Quantum diffusion models for quantum data learning"

**Oct 2024**

**38° cycle PhD seminar**, Rome, Italy, Talk

"Quantum machine learning and physics-informed deep learning algorithms"

**Apr 2024**

**EuCAIFCon2024**, Amsterdam, Netherlands, Flash Talk

"Quantum diffusion models"

**Nov 2023**

**QAIXIAQ2023 Workshop**, Rome, Italy, Talk

"Quantum diffusion models using parameterized quantum circuits for data denoising"

**July 2021**

**ISIT, 2021 IEEE International Symposium on Information Theory**, Talk

"Compound channel capacities under energy constraints and application"

## Languages

- Italian - native

- English - fluent

- German - beginner

## Software

- Python, PyTorch - advanced

- Tensorflow, GitHub, Linux, Latex - good

- C, HTML - basic

## Publications

- Andrea Cacioppo, Lorenzo Colantonio, Simone Bordoni, and Stefano Giagu. **Quantum Diffusion Models**. arXiv preprint arXiv:2311.15444, 2023

- Lorenzo Colantonio, Andrea Cacioppo, Federico Scarpati, and Stefano Giagu. **Efficient graph coloring with neural networks: A physics-inspired approach for large graphs**. arXiv preprint arXiv:2408.01503, 2024.

- Andrea Cacioppo, Lorenzo Colantonio, Simone Bordoni, and Stefano Giagu. **Quantum Diffusion Models**. arXiv preprint arXiv:2311.15444, 2023.

- Andrea Cacioppo, Janis Nötzel, and Matteo Rosati. **Compound Channel Capacities under Energy Constraints and Application**. In 2021 IEEE International Symposium on Information Theory (ISIT), pages 640–645. IEEE, 2021.

- Andrea Cacioppo. **Deep learning for the parameter estimation of tight-binding Hamiltonians**. Master's thesis, Sapienza Università di Roma, Italy, 2020.