Luca Martinoia · Chiavari, Italy · **luca.martinoia@hotmail.it** · +39 328 1453749 · Personal website

Luca Martinoia

- Status: Ph.D. in theoretical physics, Algorithm developer at Rulex.
- IT Skills: Python, C, Office Suite, Wolfram Mathematica, LaTeX

Summary

I have more than five years of experience in theoretical and applied research across physics, mathematics, and engineering. My work focuses on modelling complex systems and developing algorithms, computational tools, and simulations to analyse system behaviour.
I hold a Ph.D. in theoretical physics, with research at the intersection of high-energy physics, statistical physics, and condensed matter theory. This provided a strong foundation in mathematical modelling and analytical reasoning.
I currently work on the development and integration of optimization algorithms for decision intelligence applications.
Previously, I developed modelling and simulation tools for Air Traffic Management, including simulators for surveillance systems and the analysis of cyber-threat scenarios such as spoofing and jamming, along with countermeasure evaluation.

Experience

2026 – now **Algorithm developer** Rulex S.r.l.

- Research and development of optimization algorithms for decision intelligence.

2025 – 2026 **R&D Project Engineer** STAM S.r.l.

- R&D Engineer on EU-funded Space and Defence projects.
- Technical lead of the SESAR-funded ATM-EXCITE project, responsible for the design and development of a Air Traffic simulator to model cyber-attacks and countermeasures on surveillance systems.
- System Engineer on the EDF EISNET project (European Interactive Sensor-based dynamic defence NETwork).

2024 – 2025 **Researcher in Theoretical Neuroscience** University of Padova

- Led a research project on predicting the response of stochastic neural networks to external stimuli.
- Developed numerical simulations to study network dynamics and response properties.

2024 **Researcher in Theoretical Physics** University of Genova

- Led a research project on collective motion in living matter, including bacterial colonies and bird flocks.
- Contributed to the resolution of a long-standing problem in active matter physics, with a focus on analytic solutions of stochastic PDEs.

Education

2024 **Ph.D. in Theoretical Physics** University of Genova

- Final mark: Excellent *cum laude*.
- Developed a theoretical framework extending hydrodynamics.
- Extensive use of Wolfram Mathematica for analytical modeling and computation.

2022 **Visiting Researcher** Université Libre de Bruxelles

- Three-months research visit.

2020 **Master's Degree in Theoretical Physics** University of Genova

- Final mark: 110/110.

2014 **Bachelor's Degree in Physics** University of Genova

- Final mark: 110/110 *cum laude*.

Courses

Postgraduate-level courses

- Statistical Field Theory — Galileo Galilei Institute (2021–2023).
- Theoretical Foundations of Machine Learning — University of Genova, MalGa (June 2025).
- Simulation Techniques in ATM — TU Braunschweig, ENGAGE 2 (September 2025).

Other professional certificates

- Underwater Acoustics and Sonar Systems — Elettronica ELT (January 2026).
- Computational Neuroscience — Neuromatch Academy (May 2025).
- Data Analysis and Scientific Computing with Python — frooBootCamp (November 2025).
- Spatial Data Science: The New Frontier in Analytics — ESRI (November 2025).