

Riccardo Porotti

KEY ACCOMPLISHMENTS

- PhD student in Physics with over 4 years of experience in Machine Learning, with an expertise in Reinforcement Learning algorithms.
- Advanced understanding of statistical, algebraic and other analytical techniques, with good technical, computational and problem-solving skills.
- Managed and tutored both high school and university students in mathematics, physics, chemistry, and other such subjects, by preparing lectures designed to meet individual goals and improve academic performance.
- Published scientific papers in high impact factor journals.
- Attended training sessions and workshops to keep up with the latest techniques and technologies in the field of Machine Learning and state-of-the-art artificial intelligence applications.

EDUCATION

MPI for the Science of Light, Erlangen, DE - PhD Student

JANUARY 2019 - PRESENT

Development of machine learning algorithms for their application in physics applications, mostly for feedback-based control of classical and quantum systems. Most applications involve reinforcement learning techniques to find the correct pulse sequences for quantum state preparation.

Preparation of data, through the means of simulations of experimental setups, which is required for the aforementioned applications.

University of Milan, Milan, IT – MSc in Physics, 110/110 cum laude

OCTOBER 2016 – JULY 2018

Master's degree thesis titled "Reinforcement learning-based control of coherent transport by adiabatic passage of spin qubits in silicon".

In addition to providing strong resources in both theoretical and experimental advanced physics, the degree ensured proficiency in quantum computing, social networks, condensed matter and statistical physics.

University of Milan, Milan, IT – BSc in Physics

OCTOBER 2012 – FEBRUARY 2016

Basic curriculum in both theoretical and experimental physics, with a strong focus on linear algebra, mathematical modelling and analysis, and programming. Final thesis titled "Electroactive ionic soft actuators with monolithically integrated gold nanocomposite electrodes". Programming in C/C++, bash, awk, Mathematica.



CONTACT

📍 **Location:** Erlangen, Germany

🌐 **Linkedin:** [in/riccardo-porotti/](https://www.linkedin.com/in/riccardo-porotti/)

🐙 **Github:** github.com/rporotti

🌐 **Website:** rporotti.github.io/

SKILLS

Technical skills

- Reinforcement Learning
- Machine Learning
- Numerical Simulations
- Statistical Analysis
- Data Science
- Data Mining
- Data visualisation
- Deep Learning
- Quantitative analysis
- Regression models

Soft skills

- Good verbal, visual and written communication skills
- Scientific writing
- Teamwork, cooperation and commitment
- Great problem-solving skills
- Multitasking
- Good time management
- Critical and logical thinking

WORK EXPERIENCE

FAU Erlangen-Nürnberg, Erlangen, DE - Teaching Assistant

APRIL 2019 – OCTOBER 2019

Organized the tutoring sessions for the subject "Machine Learning for Physicists" 2019/2020, held by Prof. Florian Marquardt, and aimed at students of the first year of the Physics undergraduate program.

University of Milan, Milan, IT – University Tutor

OCTOBER 2018 – JANUARY 2021

Provided educational support during lab hours to over 100 first-year Physics undergraduate program students, for the "Computer Science" course held by Dr. Dario Tamascelli. The subject's goal is to supply key resources in C++ programming.

Private Tutor

2012 – 2018

Developed study plans to achieve students' individual learning goals, including schedule outlining, time management, learning habits and study style.

PUBLICATIONS & CONFERENCES

Publications

- "Coherent transport of quantum states by deep reinforcement learning", R Porotti, D Tamascelli, M Restelli, E Prati, Comm. Phys 2 (2019)
- "Electroactive ionic soft actuators with monolithically integrated gold nanocomposite electrodes", Y Yan, T Santaniello, LG Bettini, C Minnai, A Bellacicca, R Porotti, I Denti, G. Faraone, M. Merlini, C. Lenardi, P. Milani, Adv. Mat, 29 (2017)

Conferences

- R. Porotti et al., "Reinforcement Learning-based control of a cavity system with non linear measurement", APS March Meeting 2021, Online
- R. Porotti et al., "Continuous feedback of a controllable nonlinear cavity with Deep Reinforcement Learning", APS March Meeting 2020, Denver, USA
- R. Porotti et al., "Deep Reinforcement Learning Based Control of Coherent Transport by Adiabatic Passage of Spin Qubits", APS March Meeting 2019, Boston, USA

WORKSHOPS

- Mediterranean Machine Learning Summer School, Online - January 2021
Topics: Computer vision, NLP, Bayesian and casual inference, Deep Reinforcement Learning, JAX
- Julia Coursework, Online - November 2020
Introduction to Julia for data science and machine learning
- Python for HPC, Online – November 2020
Topics: parallel computing, Numba, MPI
- Probabilistic AI Summer School, Trondheim, NO - June 2019
Focus on probabilistic and deep generative models. Introduction to the use of Pyro.
- "ML for Quantum Technology" workshop, Erlangen, DE – May 2019

Programming

- Python (Numpy, Scipy, Scikit-learn, Pandas, Matplotlib, Seaborn)
- OpenAI Baselines
- Keras
- Unix/Linux systems
- C/C++
- Mathematica
- Shell-scripting
- Git
- HTML/CSS
- Microsoft Office
- AWS (Amplify, S3)
- JavaScript (beginner)
- SQL (beginner)

LANGUAGES

- **Italian:** Mother Tongue
- **English:** Fluent
- **German:** Intermediate
- **French:** Basic

Hobbies & Interests

- CrossFit, exercise, physical well-being
- Weightlifting
- TV Series, music, and pop culture
- Subtitle translation of TV Series/movies, from English to Italian for Italiansubs.net, a website with more than 500.000 users and 500 translators.
- Cycling trips from North to South of Italy in eight days
- Chess