# Keivan Amini

Physicist interested in mathematical modelling, multidisciplinary research and machine learning.

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## Education

**Sorbonne Université & École Supérieure de Physique et Chimie Industrielles** 2024 – Present
*Ph.D. in Computer Science*
Joint supervision from Institute of Intelligent Systems and Robotics and Gulliver Lab.

**Alma Mater Studiorum - University of Bologna** 2021 – 2023
*M.Sc. in Computational/Complex Systems Physics* *29.25/30.00 — 110/110*
**Courses:** Statistical Data Analysis, Supervised Statistical Learning, Software and Computing, Models and Numerical Methods, Applied Electronics, Databases, Complex Networks, Physics of Complex Systems.

**University of Ferrara** 2018 – 2021
*B.Sc. in Physics* *28.77/30.00 — 110/110 cum laude*
**Courses:** Calculus, Linear Algebra, Mathematical Methods for Physics, Laboratory of Programming & Statistics, Laboratory of Analog and Digital Electronics, Quantum Mechanics, Astrophysics, Cosmology, Nuclear Physics.

## Experience

**PhD Student** | *CNRS, Paris* Oct 2024 – Present
Theoretical and experimental work in machine learning, statistical physics and swarm robotics.

**Research Engineer** | *University of Bologna* Jan – Sep 2024
Applied statistical and graph learning methods on multi-omics big data.

**Research Intern** | *Institut des Systèmes Intelligents et de Robotique, Paris* Feb – Aug 2023

- Contributed to ELSA Project, developing an agent capable of socially interacting with a human.
- Employed Robot Operating System for building robot applications and conducting Turtlebot experiments.

**Digital Educator** | *Laboratori Aperti, Modena and Ferrara* 2021 – 2023
Digital education program in Emilia-Romagna region addressed to teaching teenagers information technologies.

- Developed interactive labs for several secondary schools, leading laboratories on coding, electronics and robotics.
- Taught how to code a space-shooter videogame with using Python during Montecreto Summpercamp 2022.

**Research Intern** | *University of Ferrara* Apr – Aug 2021
Development of an inverse kinematics algorithm for robotic arms, under supervision of Prof. Donato Vincenzi.

## Pubblications

**A New Paradigm to Study Social and Physical Affordances as Model-Based Reinforcement Learning**
Authors: Augustin Chartouny, Keivan Amini, Mehdi Khamassi, Benoît Girard.

## Honors & awards

**Centre national de la recherche scientifique (CNRS)**: awarded Ph.D. scholarship.
**University of Bologna, Department of Medicine**: awarded 26000 € research fellowship.
**National Research Council**: awarded the National Ph.D. in Artificial Intelligence for Society scholarship (refused).
**University of Bologna, Department of Physics**: awarded summer school scholarship.
**Erasmus+, Italian Ministry of Education (MIUR)**: granted two exchange scholarships.
**University of Ferrara**: awarded excellence recognition and secured full fee exemption upon M.Sc. enrollment.

## Conferences & summer schools

**Oxford Machine Learning Summer School 2024** | *Oxford, UK* Jul 2024
**Intrinsically Motivated Open-ended Learning 2023** | *Paris, France* Sep 2023
Presented M.Sc. Thesis on 'Visit the lab scenario: Exploration in Model-Based Reinforcement Learning'.
**Mediterrenean Machine Learning Summer School 2023** | *Thessaloniki, Greece* Aug 2023
Top-researchers lectures and practical sessions organized by Google DeepMind Research team.

## Skills

**Languages**: Python (NumPy, Pandas, SciPy, PyGame), C/C++ (Boost), R, Julia, SQL, MATLAB (Robotics Toolbox).
**Tools**: Git/GitHub, Linux Bash, VS Code, Arduino IDE, LaTeX.