Luca Gagliardi

PhD in Physics

+39 3515764603
lucaj.1991@gmail.com
ResearchGate
Linkedin

***Date of birth**: 11/01/1991*
***Nationality**: Italian and French*

Work Experience

June 2023 – present **PostDoc researcher**, *MaIGa-PiMLB unit (Physics informed Machine Learning for Biological Beahviour)* , University of Genoa UNIGE, Genova, Italy.
Topics: Development of models based on Reinforcement Learning to address biological questions related to navigation and prediction in turbulent flow.

Oct 2022 **Science Communicator (contract)**, Associazione Festival della Scienza, Genova, Italy.

Mar 2020 – Nov 2022 **PostDoc researcher**, *CONCEPT-lab group: Computational modeling of nanoscale and biophysical systems*, Istituto Italiano di Tecnologia (IIT), Genova, Italy.
Topics: Development of novel computational approaches to identify reactive sites on proteins based on **Machine Learning** techniques.

Feb 2020 – Apr 2022 **Adjunt professor**, *DITEN department*, University of Genoa (UniGe), Genova, Italy.
Professor of the Physics II-Thermodynamics module course, 1 semester per year (50 hours)

June 2019 – Jan 2020 **PostDoc researcher**, *Event Driven Perception for Robotics group* ,
Istituto Italiano di Tecnologia (IIT), Genova, Italy.
Topics: Development of touch skills of the iCub humanoid robot, **Reinforcement Learning**.

Oct 2018 – Feb 2019 **Research assistant**, *MMCI team: Condensed matter and interface modeling* ,
Institut Lumière Matière – CNRS (ILM), Lyon, France.
Topic: development of computer algorithms for the simulation of surface growth (KMC model)

Sept 2015 – Aug 2018 **PhD researcher**, *"NanoHeal" Marie-Curie EU project*, Université Lyon 1 (UCBL), Lyon, France.
Topic: Modeling and numerical simulations of crystal growth in confinement.

Jan – July 2015 **Master's Internship**, *CECAM-Centre Européen de Calcule Atomique et Moléculaire*, EPFL-Lausanne, Switzerland.

Education

2015 – 2018 **PhD in physics**, *Université Lyon 1 (UCBL)*, Lyon, France.

2013 – 2015 **AtoSim joint Master's degree**, *Two years program focused on the computer modeling of physical, chemical and biomolecular systems*, three diplomas awarded.

- **Master's Degree in Physics**, Universitá degli Studi La Sapienza, Rome.
  110/110 cum laude
- **Master's Degree in Material Science**, *Track Numerical Methods* ,
  École Normale Supérieure de Lyon.
  18.3/20
- **Master's Degree in Chemistry**, *Track Molecular Simulation*,
  Vrije Universiteit Amsterdam.
  8.8/10

2010 – 2013 **Bachelor's Degree in Physics**, Universitá degli Studi La Sapienza, Rome.
110/110

2005 – 2010 **Science High School Certificate - Maturitá**, Liceo Scientifico Morgagni, Rome.
100/100

Licenses

- Driving license B
- Padi Open Water diver certification

Programming Languages and tools

Advanced C, Fortran, C++, Python, OpenMP, OpenMPI, LaTeX, Git

Intermediate Matlab

Languages

Mother tongue **Italian and French**

Fluent **English**

Advanced **Spanish**

Honors and Awards

2022 **Seal of Excellence – MSCA**, *European Commission*, Horizon Europe Postdoctoral Fellowship.

2015 **Marie Curie ITN**, *European Commission*, NanoHeal Horizon2020 project, www.nanoheal.uio.no.

2013 **Erasmus Mundus Scholarship**, *European Commission*, AtoSim.

2008 **Certificate of outstanding musicianship**, *Berklee College of Music*.

Personal Skills and competences

- Music: Piano, Trumpet
- Mountaineering (climbing, skimo)
- Bike Trips (Europe and North Africa)
- Arduino projects
- Sports (martial arts, running)
- Scuba Diving (OWD certification)
- Backpack Travels (India, Myanmar, Turkey)

Soft Skills

- Systematic thinking
- Team Work
- Teaching skills
- Curiosity and Enthusiasm
- Adaptability
- Science Communication

Volunteering

Jan 2022 – present **Refugees Welcome activist**, *RW–Genova*, Genova, Italy.

06/2019 – 03/2020 **Italian and maths teacher to migrants**, *Pas à Pas*, Genova, Italy.

01/2014 – 06/2014 **Italian teacher to migrants**, *ESC-Atelier*, Roma, Italy.

08/2012 – 09/2012 **School Animator**, *FSL-India*, Genova, Italy.

2001 – 2010 **Scout**, *Agesci*, Rome, Italy.

Schools and short trainings

June 2022 **Science Stories**, *Boost your communication techniques by talking and going social*, IIT – Rome.
2-days intensive school on science communication.

Sept 2020 **STIMULATE**, *SimulaTIon in MUltiscaLe physicAl and biological sysTEms*, University of Rome Tor Vergata, stimulateworkshop2020.
1-week school on Machine and Reinforcement Learning, Rare Events and Tensor Networks.

June 2020 **RegML**, *Regularization Methods for Machine Learning*, UniGe - Genova, regml2020.
1-week school covering the state of the art on data representation, regularization and model selection.

June 2019 **MLCC**, *Machine Learning Crash Course*, UniGe - Genova, mlcc2019.
1-week school on modern machine learning with theory and practical sessions.

February – April 2019 **Machine Learning MS course**, *ENS - Lyon*.
Supervised Learning Theory, Regression, SVM, Neural Networks and Deep Learning, K-Nearest-Neighbors, Metric Learning, Optimal Transport

June 2018 **ResCom**, *CNRS school*, Porquerolles France, project.inria.fr/rescom2018.
ResCom 1-week school in the field of Machine Learning, Data Science and Network science covering basic and advanced theoretical lectures and practical sessions.

2015 – 2018 **NanoHeal**, *5 Marie-Curie EU schools (1-week each)*, www.nanoheal.uio.no.
Topics covered: Numerical methods (Matlab, Python: KMC and Image analysis), Experimental techniques (AFM,TEM), Geochemistry and Biomineralization, Scientific Writing, Science Communication

January 2014 **MOLSIM**, *CECAM node NL*, UVA Amsterdam-Netherlands, www.cecam.org/workshop-0-1058.html.
MolSim2014 is a 2-week school in the field of molecular simulation covering basic and advanced Monte Carlo and molecular dynamics techniques.

Publications

July 2023 **Journal of Chemical Theory and Computation**, *SiteFerret: beyond simple pocket identification in proteins*, **L. Gagliardi**, W. Rocchia, DOI:10.1021/acs.jctc.2c0130.

July 2022 **Frontiers in Molecular Biosciences**, *Antibody-Antigen Binding Interface Analysis in the Big Data Era*, P. Reis, G.P. Barletta, **L. Gagliardi**, S. Fortuna, M.A. Soler, W. Rocchia, DOI:10.1021/acs.jctc.2c01306.

July 2022 **Frontiers in Molecular Biosciences**, *Chanalyzer: A Computational Geometry Approach for the Analysis of Protein Channel Shape and Dynamics*, A. Raffo, **L. Gagliardi**, U. Fugacci, L. Sagresti, S. Grandinetti, G. Brancato,S. Biasotti, W. Rocchia, DOI:10.3389/fmolb.2022.933924.

July 2022 **Computers & Graphics**, *SHREC 2022: Protein-ligand binding site recognition*, **L. Gagliardi** et al., DOI:10.1016/j.jcp.2021.110936.

February 2019 **Journal of Computational Physics**, *Controlling anisotropy in 2D microscopic models of growth*, **L. Gagliardi** and O. Pierre-Louis, DOI:10.1016/j.jcp.2021.110936 .

September 2019 **EPL 127, 59002**, *The Nonequilibrium Crystallization Force*, **L. Gagliardi** and O. Pierre-Louis, DOI: 10.1209/0295-5075/127/59002.

February 2019 **Journal of Crystal Growth 514, 70–82**, *Confined Growth with slow surface kinetics: a Thin Film Model approach*, **L. Gagliardi** and O. Pierre-Louis, DOI:10.1016/j.jcrysgro.2019.02.022.

August 2018 **Phys. Rev. Lett. 121, 096101**, *Cavity formation in confined growing crystals*, F. Kohler, **L. Gagliardi**, O. Pierre-Louis and D. K. Dysthe, DOI:10.1103/PhysRevLett.121.096101.

July 2018 **New J. Phys. 20, 073050**, *Growth in nano confined crystals: Subcritical cavity formation and viscosity effects*, **L. Gagliardi** and O. Pierre-Louis, DOI:10.1088/1367-2630/aad454.

January 2018 **Phys. Rev. E 97, 012802**, *Thin film modeling of crystal dissolution and growth in confinement*, **L. Gagliardi** and O. Pierre-Louis, DOI:10.1103/PhysRevE.97.012802.

October 2016 **Phys. Rev. B 94, 134426**, *Charge transport in superionic and melted AgI under magnetic field via molecular dynamics*, **L. Gagliardi** and S. Bonella, DOI: 10.1103/PhysRevB.94.134426.