

Francesco Mambretti, born in Monza, 27/08/1993
Computational physicist

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[Github personal page](#) [LinkedIn](#)



Profile

Physicist, expert in **computer simulation** of materials, High Performance Computing, Machine Learning and data analysis. After a 7-years career in **academic research**, I am now aiming at **R&D/technological positions in industry** to leverage my scientific experience in a more application-oriented context.

I got married in 2022 and became father of a little girl in 2023.

Keywords

Simulation of materials; Machine Learning; Python; C++; Microsoft Office; data analysis; physical modelling; analytical thinking; teaching; written and oral communication; team work.

Current



Postdoctoral researcher / Istituto Italiano di Tecnologia (Genova)

Dec 2022 - current

Simulation of catalytic processes: 1) ammonia decomposition for clean hydrogen production and 2) optimization of graphene synthesis on copper for industrial applications. (supervisor: prof. M. Parrinello, Atomistic Simulations Group)

Past work experiences



Scientific consultant for industry / Milano Multiphysics

Oct 2024 - Mar 2025

Innovative production of a clean fuel; simulation and physical modelling.



Postdoctoral researcher / Università di Padova

Feb 2021 - Nov 2022

Postdoc at the Lab for Interdisciplinary Physics with prof. S. Suweis. Simulations of DNA-based polymeric systems. Development of a Python pipeline for analysis of large experimental data.



University teaching assistant / Università di Milano

Nov 2017 - Jan 2025

Courses: *Mathematics for Chemistry*, *Numerical Simulation and Numerical Treatment of Experimental Data for Physics*, and *Measurement of Nanoscale Interactions in Biological Systems and Data Analysis for Biology* (in total, > 300 hours).



Tutor / Camplus College Milano

Jan 2015 - current

Tutor of Mathematics and Physics at the Camplus CEUR colleges (~ 50 hours/year).

Scientific activity

Publications & Grants

Author of 11 peer-reviewed papers in international journals. Peer-review activity for Physical Review journals. Winner of 1 ISCRA B and 4 ISCRA C CINECA supercomputing grants.

Other computer skills/software

Unix & Windows. Microsoft Office. Parallel programming (MPI, CUDA). LAMMPS, Quantum Espresso, OxDNA, PLUMED, GitHub, LaTeX, Jupyter Notebooks.

Scientific dissemination

First author in 14 talks and 6 posters at national and international scientific events; > 10 talks for schools. Teacher in two PhD courses (Politecnico di Torino & Università di Genova). Local organiser of a CECAM workshop on catalysis (2024, Genova).

Education

PhD in Physics / Università di Milano

Feb 2017 - Mar 2021

Research on condensed matter, soft matter and complex systems with machine learning and computer simulations (supervisor: prof. D.E. Galli).

Master in Physics / Università di Milano

Jan 2015 - Apr 2017

Bachelor in Physics / Università di Milano

Sept 2011 - Dec 2015

High school diploma / Liceo Classico "B. Zucchi", Monza

Sept 2006 - Jun 2011

Languages

English - C2 level (CPE, British council - 2015).

Extra

Charity & volunteering

Temporary Volunteer of Italian Red Cross (2020). Since 2015, member of AVIS (blood donors). 2009 - 2016: charity activity in a retirement house and with disabled people.

Scientific culture

Collaborator (since 2015) and vice-president (start: 2023) of Associazione Euresis, a non-profit scientific association promoting scientific culture through conferences and exhibitions.