

# Leonardo Salicari, Ph.D.

## Curriculum Vitae

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## Education

- Oct 2021 – **Ph.D. in Physics**, *University of Padua, Excellent*  
Dic 2024 Supervisor: Prof. Antonio Trovato  
Thesis's title: Statistical mechanics and numerical simulations of topologically entangled proteins  
Group's website
- Oct 2018 – **Master's degree in Physics - Statistical Mechanics**, *University of Padua, 110/110 with honors*  
Apr 2021 Selected topics: Stochastic dynamics, Machine Learning (supervised), Data Analysis and Visualization, Non-Equilibrium Statistical Mechanics, Molecular Dynamics, and Biophysics
- Oct 2015 – **Bachelor's degree in Physics**, *University of Perugia, 110/110 with honours*  
Sept 2018

## Working Experience

- Oct 2021 – **Ph.D. in Physics**, *University of Padua*  
Dic 2024 Supervisor: Prof. Antonio Trovato
- Apr 2024 – **Teaching assistant**, *University of Padua, Italy*  
May 2024 Laboratory assistant for engineering students in the course of Physics Laboratory I (Mechanics)
- 2019 – 2023 **Tutoring**, *Cooperativa L'Impronta/independently, Italy*  
Tutoring highschool students in: Mathematics, Physics and Programming (C/C++)
- June 2015 – **Children's chaperone**, *Colleverde Summer Camps, Italy*  
July 2019

## Skills

- Languages Python, C/C++, Cython, L<sup>A</sup>T<sub>E</sub>X, bash  
Strong proficiency acquired through University courses and Ph.D., with projects related to numerical simulations (C++, Python, Cython), data analysis (Python), visualization etc. Example of Python package developed: pyge.
- DevOps git, CI/CD tools, github/lab, containerization  
Software versioning skills and CI tools knowledge developed for personal and research projects.
- OS Linux, LibreOffice/Office/Google Docs  
System administrator and daily driver of Linux machines (specialy, Arch and Debian based). Office suite expertise for professional presentations and posters.
- Data An. Polars/Pandas, Scipy, Matplotlib, Numpy  
Example project: I have compiled and analysed a bioinformatic dataset
- ML Keras, Scikit-learn, PyTorch  
Example project: a CNN + NN model to classify knots in synthetic proteins with interaction-only information.

## Achievements

- Public. Fields: Computational Biophysics, Numerical Simulations, Statistical Mechanics, Complex Systems  
SALICARI, Leonardo ; BAIESI, Marco ; ORLANDINI, Enzo ; TROVATO, Antonio: Folding kinetics of an entangled protein. In: *PLOS Computational Biology* 19 (2023), 11, Nr. 11, 1-30. <https://doi.org/10.1371/journal.pcbi.1011107>
- SALICARI, Leonardo ; TROVATO, Antonio: Entangled Motifs in Membrane Protein Structures. 24 (2023), Nr. 11, 9193. <https://www.mdpi.com/1422-0067/24/11/9193>
- Talks Three invited talks and two accepted ones in international conferences during the Ph.D. period (Example: Invited webinar for BioExcel)
- Awards Best poster at BioExcel School on Biomolecular simulations (Apr 2022)

## Selected coursework

Bachelor	Advance Calculus, Linear algebra, Statistics, Computational Physics, OOP (C++) and Computer Architecture.
Master	Stochastic dynamics, Machine Learning (classical and deep learning), Data Analysis and Visualization, Non-Equilibrium Statistical Mechanics, Molecular Dynamics, and Biophysics.
Ph.D.	HPC (CUDA, OpenMP, MPI, TBB), Molecular Dynamics, QM methods, Statistical Physics of Deep Learning, Teaching, Containerization.

## Languages

Italian	Native speaker
English	C1 <i>Academically, I wrote various dissertations and held public talks in English. Based on the CEFR levels. Completed the “Academic English Course” (30h) at the UNIPD Language Center</i>

## Soft Skills

Organization	<i>from Ph.D. and tutoring experiences</i>
Problem Solving	<i>Research experience in STEM field</i>
Teamwork	<i>from tutoring and research experience</i>

## Other

Driving licence: B  
Basics of cardiopulmonary resuscitation (CPR): Open Badge