

Giacomo Meanti

Curriculum Vitae



Education

- 2024–Present **PostDoc**, *INRIA Grenoble*, Thoth.
Exploring the algorithmic details of diffusion models, working on making sampling generative models more efficient. Supervised by Julien Mairal and Michael Arbel.
- 2023–2024 **PostDoc**, *IIT*, Genova.
Working on physics-informed machine learning, as well as kernel-based algorithms for natural sciences (study of dynamical systems, force estimation) at the Italian Institute of Technology.
- 2019–2023 **PhD**, *Università di Genova*, Genova.
Supervised by Prof. Lorenzo Rosasco at the LCSL lab, I focused on the computational and statistical aspects of kernel methods, making them more scalable, efficient and user-friendly. My research interests include scalable and efficient shallow learning models, as well as applying ML to the natural sciences.
- 2022 **Visiting at University of California, Berkeley**.
I spent 4 months at UCB, supervised by Ben Recht, working on large scale kernel methods.
- 2016–2018 **MSc in Computer Science**, *ETHZ*, Zürich, 5.69/6.
I specialized in statistics and machine learning, focussing on their applications to biology through courses on computational systems biology and statistical models in biology.
- 2018 **Dissertation**, *Protein Contact Network Analysis with Graph Neural Networks*.
Supervisors: Prof. Joachim Buhmann, Dr. Stefan Bauer
Explored a novel application of graph neural networks to protein structures, for downstream classification tasks. An attention-based algorithm allowed to interpret the results.
- 2013–2016 **BSc in Computer Science**, *The University of Southampton*, Southampton (UK),
Grade: First Class Honours (average 90/100).
- 2016 **Dissertation**, *Modelling Capacitor Patterns To Detect Alignment*.
Supervisor: Dr. Klaus-Peter Zauner
I worked on the optimization of capacitor plate conformation, with the goal of facilitating alignment detection between two objects, constrained by low precision measurements.

Publications

- 2023 G. Meanti*, A. Chatalic*, V. R. Kostic, P. Novelli, M. Pontil, L. Rosasco, “Estimating Koopman operators with sketching to provably learn large scale dynamical systems”, NeurIPS.
- 2023 S. F. Keil*, G. Meanti*, F. Warburg, A. Kanazawa, B. Recht, “K-Planes: Explicit Radiance Fields in Space, Time, and Appearance”, CVPR.
- 2022 S. Vigogna, G. Meanti, E. De Vito, and L. Rosasco, “Multiclass learning with margin: exponential rates with no bias-variance trade-off”, ICML.

*: equal contributions

- 2022 D. Lagomarsion-Oneto, G. Meanti, N. Pagliana, A. Verri, A. Mazzino, L. Rosasco, and A. Seminara, “Physics Informed Shallow Machine Learning for Wind Speed Prediction”, *Energy*.
- 2022 G. Meanti, L. Carratino, L. Rosasco, E. De Vito, “Efficient Hyperparameter Tuning for Large Scale Kernel Ridge Regression”, *AISTATS*.
- 2021 F. Ceola, E. Maiettini, G. Pasquale, G. Meanti, L. Rosasco, and L. Natale, “Learn Fast, Segment Well: Fast Object Segmentation Learning on the iCub Robot”, *IEEE Transactions on Robotics*.
- 2020 G. Meanti, L. Carratino, L. Rosasco, and A. Rudi, “Kernel Methods Through the Roof: Handling Billions of Points Efficiently”, *NeurIPS (Oral, top 1%)*.
- 2018 G. Meanti, S. Bauer, X. Deupi, T. Flock, and J. Buhmann, “Protein Structure Analysis with Graph Neural Nets”, *Joint ICML and IJCAI 2018 Workshop on Computational Biology*.

Teaching

- 2021–2022 **Teaching Assistant for *Machine Learning* course, UniGe.**
Prepared python labs for an introductory ML course, helping students complete their tasks.
- 2020–2021 **Introduction to Machine Learning – MAIA course.**
Taught several introductory ML lessons for corporate students through the MAIA program.
- 2023 **Natural Language Processing.**
A brief introduction to the deep learning point of view on NLP taught to MSc students.

Talks

- 09/2023 Seminar at the Center for Brains, Minds and Machines (MIT).
- 11/2022 *Conference*: Matematica per l'IA e il Machine Learning, Giovani ricercatori @ PoliTo
- 2020–2022 Seminars in Computer Science @ UniGE
- 2021 Research oriented talk at G-Research
- 2020 Oral presentation at NeurIPS

Software

Falkon Software library for large scale kernel regression with GPU support
K-Planes Radiance fields in arbitrary dimensions
 More on my github profile <https://github.com/giodiro>

Work Experience

- January – **Modeling Expert, *Learn to Forecast (l2f)*, Lausanne.**
- October 2019 I worked in a team devising time-series models for financial data. Developing forecasting models for prices of different assets and deploying them at scale using cloud technologies.

October 2017 **Research Assistant**, *ETHZ – Institute for Machine Learning*, Zürich.

- December 2018 I worked at the Institute for Machine Learning on a number of projects also in collaboration with external departments such as chemistry and neuroscience. I analyzed different datasets applying existing statistical techniques and exploring novel approaches to exploit data-dependent priors. We also worked on sharing our results with the wider research community.