Giacomo Meanti

Curriculum Vitae

🖂 *gmeanti.com*

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

2024 P. Novelli, L. Bonati, P. J. Buigues, G. Meanti, L. Rosasco, M. Parrinello, M. Pontil, "Fine-tuning Foundation Models for Molecular Dynamics: A Data-Efficient Approach with Random Features", NeurIPS workshop

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.

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*: equal contributions

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.
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

2023, 2024	**Natural Language Processing (6 CFU)**, *UniGe*. Introduction to NLP using deep learning, taught to MSc (year 2) students. 8 hours teaching contracts.
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.

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 – October 2019

Modeling Expert, *Learn to Forecast (l2f)*, Lausanne.
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 – December 2018

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