

Davide Badalotti

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Google Scholar: <https://scholar.google.com/citations?user=DtZTqpcAAAAJ&hl=en>

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PROFILE AND RESEARCH INTERESTS Passionately curious Data Scientist with a strong dedication to research and experience in development of machine learning models for healthcare and industrial predictive maintenance. Quantum machine learning enthusiast.

Mainly interested in machine learning on time-series and non-euclidean domains (graphs, manifolds).

PUBLICATIONS Alchieri, L., Badalotti, D., Bonardi, P. et al. *An introduction to quantum machine learning: from quantum logic to quantum deep learning*. Quantum Mach. Intell. 3, 28 (2021). <https://doi.org/10.1007/s42484-021-00056-8>

Martin del Campo Barraza, S., Lindskog, W., Badalotti, D., Liew, O., & Toyser, A. (2021). *Active Learning Framework for Time-Series Classification of Vibration and Industrial Process Data*. Annual Conference of the PHM Society, 13(1). <https://doi.org/10.36001/phmconf.2021.v13i1.3059>

EXPERIENCE *Data Scientist* Sept 2021 - Present
Humanitas AI center, Milan, Italy

- Research, development and testing of machine learning models for healthcare, destined to both clinical and AI-related peer reviewed journals.
- Supporting healthcare professionals in the realization of clinical studies.
- Full responsibility over whole data life-cycle (from extraction to visualization).

Data Science Researcher Feb 2021 - July 2021
Viking Analytics, Gothenburg, Sweden

- Supported the R&D team in the development of an active learning framework for the classification of time series data, presented in the publication above.
- Explored time series to image encoding techniques.
- Developed SOTA active learning with time series algorithms for testing purposes.

EDUCATION *Master's Degree in Data Science - GPA: 29.2/30* (exp.) March 2022
Università degli Studi di Milano Bicocca, Milano, Italy

- Proposed a project on Quantum Machine Learning, carried out with the assistance of Prof. Simone Bianco together with two fellow students. Results have been published on the peer-reviewed journal *Quantum Machine Intelligence*.
- Attended meetings of Prof. Matteo Luigi Palmonari's research group of on the subject of distributional word embeddings. Presented a project on the technique of label propagation.
- Thesis title: *Active Learning with time-series data using image encodings and convolutional neural networks*. Development and testing of active learning methods for time series based on time-series imaging.

Bachelor's Degree In Physics - Cum laude October 2019
Università degli Studi di Milano, Milano, Italy

- Strongly theoretical and computational curriculum.
- Computational thesis. Title: *Estimation of Quantum Chromodynamics-related uncertainties in the determination of the Weinberg angle at a hadron collider*. Simulation and analysis of hadronic collision processes. Theoretical relevance for LHCb, ATLAS and CMB experiments held at CERN.

Maturità Scientifica - 100/100 July 2016
Liceo Scientifico Statale Arturo Tosi, Busto Arsizio, VA

- Students representative at the school board during the year 2014/2015.
- Basketball team member during the year 2012/2013 and athletics team member during the year 2013/2014.

SKILLS AND LANGUAGES

Programming Languages: Python, R, C++, CUDA, Julia

Other Languages: Bash, Latex, Mathematica

Databases: SQL, MongoDB, Neo4j

Cloud: Microsoft Azure, AWS, Google Cloud Platform

Softwares and OSs: Git, Docker, GNU/Linux, BSD, Windows, MacOS

Languages: Italian: Native, English: Fluent (C1 level)

OTHER PROJECTS

- *ACTS*: Efficient implementation of SOTA active learning with time series algorithm. Available on GitHub.
- *S-RANK*: Implementation of Scalable ranking algorithm, for feature selection in clustering problems. Now with 4k downloads on pypi.
- *Large samples testing framework*: General framework for CE plotting, based on Lin et al., "Too Big to Fail: Large Samples and the p-Value Problem", <http://dx.doi.org/10.1287/isre.2013.0480>

INTERESTS AND OTHER ACTIVITIES

- Semi-professional basketball player. (2016 to 2019).
- Volunteer for *Manos Amigas Guatemala* as handyman and entertainer in San Andrés Itzapa. (August 2016)
- Volunteer for *Auser* during first and second COVID-19 lockdown, providing assistance for fragile and elderly people. (March 2020 - December 2020).
- Private math and physics tutor for high school students since 2017.
- Member of the Free Software Foundation (and of the Church of Emacs).

REFERENCES

Prof. Matteo Maria Pelagatti, Department director (dipartimento di economia, metodi quantitativi e strategie di impresa), Università degli Studi di Milano Bicocca. Milano, Italy. matteo.pelagatti@unimib.it

Prof. Simone Bianco, Associate Professor (dipartimento di informatica, sistemistica e comunicazione), Università degli Studi di Milano Bicocca. Milano, Italy. simone.bianco@unimib.it

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