Marcello Massimo Negri

PROFILE

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GitHub: https://github.com/marcello-negri
Nationality: Italian
Date of birth: 04/01/1998
Languages: Italian, English (IELTS 8/9), German (B1)

WORKING EXPERIENCE

- **ETH Zurich** — Rämistrasse 101, 8092 Zürich, CH
  - ***Student research assistant***: Chair of *Data Analytics Lab* supervised by Prof. T. Hofmann — 03/2021-06/2021
    I worked on a **deep learning project** in the framework of **gravitational wave physics**: I developed an emulator of complex cosmological simulations and an inverse-regression model to constraint the source of gravitational waves.
  - ***Student research assistant:*** Chair of *Systems Design* supervised by Prof. F. Schweitzer — 06/2020-03/2021
    My work included data analysis tasks for three different research projects where I mainly performed **data collection**, **processing** and **cleaning** tasks, dealing with large datasets in a Python and Unix environment.

EDUCATION

- **ETH Zurich** — Rämistrasse 101, 8092 Zürich, CH

  ***M.Sc. in Physics* – GPA 5.71/6** — 09/2019-11/2021
  - ***Master's Thesis***: Chair of *Biomedical Informatics* supervised by Prof. Rätsch (S21):
    I worked at the interface between **variational autoencoders** and **meta-learning** and I proposed a flexible prior to obtain better bounds and richer latent representations, evaluated in terms of accuracy in unsupervised **few-shot classification**.
  - ***Semester research project***: *Trapped Ion Quantum Information* supervised by Dr. Reiter (W21):
    I investigated the possibility to exploit partial permutational symmetry to mixed species spin boson systems to retrieve the exponential reduction of computational resources that characterizes the fully symmetric system.
  - ***Semester research project***: *Complex Networks* supervised by Prof. Schweitzer (S20):
    I developed a mathematical framework to detect the optimal time window size to aggregate time-stamped interactions into a sequence of static networks while allowing for the identification of abrupt and moderate changes in the system.

  ↦ currently writing a scientific paper on the project with the aim of a **publication**

  Introduction to Machine Learning • Probabilistic Artificial Intelligence • Introduction to Computational Physics • Complex Networks • Statistical Physics • Quantum Information Processing

- **Università Statale degli Studi di Milano** — via Celoria 16, Milano, IT

  ***B.Sc. in Physics* - 110/110 cum laude** — 09/2016-07/2019
  - ***Bachelor's thesis:*** *"Machine learning for di-tau invariant mass reconstruction in ATLAS"*
    I exploited **machine learning** techniques - a Boosted Regression Tree and a Neural Network - to reconstruct the invariant mass of the Higgs boson from its decay into pairs of tau leptons.

  Analysis I (30+) • Analysis II (30+) • Analysis III (30+) • Linear Algebra (30+) • Computer Science (30) • Computational Physics (26) • Experimental Data Processing (30)

- **Liceo Scientifico Statale Alessandro Volta** — via B. Marcello 7, Milano, IT

  ***Scientific Lyceum Diploma* - 100/100** — 09/2011-06/2016

  Peer mentoring • Film club • Mathematics games • Physics games • Python course

COMPUTER SKILLS

Machine learning libraries:	Scikit-learn, PyTorch, Keras, Pandas, NumPy, SciPy
Programming languages:	***Advanced:*** Python, C++, Shell Scripting, LaTeX - ***Basic***: R, Mathematica
Operating systems:	Linux, Mac OS, Microsoft Windows