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
  - ***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.
  - ***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

- **Universität Basel** — Peterspl. 1, 4001 Basel, CH

  Dr.* in *Machine Learning — 02/2022-ongoing

  - In my research I aim to improve machine learning models by leveraging physics knowledge and by using a probabilistic approach. So far, I worked with PINNs, normalizing flows, diffusion models, the UNet and attention mechanisms

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

  ***M.Sc.* in *Physics* - GPA 5.71/6** — 09/2019-12/2021

  - ***Master's Thesis***: Chair of *Biomedical Informatics* Prof. G. Rätsch - **published**
    meta-learning • VAEs • priors • few-shot learning • probabilistic machine learning
  - ***Semester research project***: *Complex Networks* Prof. F. Schweitzer
    time series • complex networks • similarity • time-window detection
  - ***Semester research project***: *Trapped Ion Quantum Information* Dr. F. Reiter
    quantum computers simulation • symmetries • exponential computational speed-up

- **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"*
    neural network • boosted regression trees • AUC • Higgs physics

PUBLICATIONS

- **M. Negri**, V. Fortuin, J. Stühmer, *"Meta-learning richer priors for VAEs",* AABI 2022 pdf and poster
- F. Arend Torres, **M. Negri**, M. Nagy-Huber, M. Samarin, V. Roth, *"Mesh-free Eulerian Physics-Informed Neural Networks"*, under review, 2022 pdf

COMPUTER SKILLS

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