Fabio Mazza

Born in Torino, Italy, in 1995

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https://www.linkedin.com/in/fabmazz

Education

2019 – 2023 **PhD Program in Physics** *Politecnico di Torino* Torino, Italy
The focus of the PhD is the investigation and development of statistical inference methods that can be applied in the field of epidemic inference and control on large scale contact graphs, also employing machine learning techniques.

2018 – 2019 **M2 in Physics of Complex Systems** , *Université Paris Diderot*
Mention Très bien

March 2019 **Spring College on the Physics of Complex Systems** *ICTP, Trieste, Italy*
Topics covered: Self-organized criticality, Elements of Quantitative Finance, Randomness in Biology, Statistical Mechanics of Two Dimensional Critical Curves, Electrostatic Interactions in Soft and Biological Matter.

2017 – 2019 **M.Sc. in Physics of Complex Systems, international track**, *Politecnico di Torino, ICTP and SISSA, Paris Diderot, Paris Sud and UPMC*, Final grade of 110/100 cum laude
Thesis title: *Multiscale modeling of influenza viral emergence*
The Master of Science in Physics of Complex Systems is a selective program which aims to provide the most advanced concepts and methods needed to tackle emergent interdisciplinary problems. It consists in three semesters of courses, held first in Trieste, than Torino and finally Paris, and a fourth semester dedicated to the internship and the Spring College in Physics of Complex Systems. The programme is convered by a scolarship in the Paris and Trieste semesters.

2014 – 2017 **Bachelor Degree in Physical Engineering**, *Politecnico di Torino*, Torino, Italy
Final grade 109/110

Experience

2021 **Spring College on the Physics of Complex Systems - 2021** *ICTP*, Trieste, Italy, online

2019 **Master of Science Internship** *INSERM, UMR-S 1136, Institut Pierre Louis d'Epidémiologie et de Santé Publique* Paris, France
Thesis work: *Multiscale modeling of influenza viral emergence*
The internship focused on the design and implementation of a nested model of influenza viral emergence based on a metapopulation framework, accounting for within-host viral dynamics and host-to-host diffusion on contact network.

2017 – 2018 **Visiting student**, *SISSA and ICTP*, Trieste, Italy

2017 **Bachelor's degree internship** *Prima Electro S.P.A.*, Torino, Italy
Characterization of high power semiconductor lasers: this internship was an optional part of the Bachelor's degree course in Physical Engineering. The experience included a total of 300 hours of work in close contact with the research and development team of the company.

Talks

2021 **SmartData Center @ Politecnico di Torino**, Torino, Italy
Reconstructing epidemic cascades with autoregressive neural networks - part of the SmartTalks series

Other Experiences

2018 **Laboratory assistant in Physics I**, *Politecnico di Torino*
Assistance to the experimental experience of the Physics I course of the Bachelor's Degree

2016 **WEEE Open Student Team**, *Politecnico di Torino*
Founding member of the team, born with the aim of regenerating dismissed electronical equipment and donating it to other public institutions and non-profit organizations. The team has so far recovered many unused computers from the university, and donated them to high schools in Torino after repairing them.

Skills

Languages

Italian — Mother tongue

English — Strong reading, writing, listening and speaking skills, C1 Level
Certifications: IELTS 7.0 2014

French — Very good reading, listening and speaking skills, B2 Level

Others

Programming
- Very good knowledge of C++, Python, Julia, LaTeX and Java
- Strong experience with Numpy, Pandas and PyTorch, NetworkX Python libraries
- Data analysis

Research interests

- Complex networks
- Statistical inference
- Neural networks and Deep Learning

Publications and preprints

Biazzo, I., Braunstein, A., Dall'Asta, L., & **Mazza, F.** Epidemic inference through generative neural networks. *arXiv:2111.03383 [cond-mat]*. Retrieved March 4, 2022, from http://arxiv.org/abs/2111.03383

Baker, A., Biazzo, I., Braunstein, A., Catania, G., Dall'Asta, L., Ingrosso, A., Krzakala, F., **Mazza, F.**, Mézard, M., Muntoni, A. P., Refinetti, M., Mannelli, S. S., & Zdeborová, L. Epidemic mitigation by statistical inference from contact tracing data. *Proceedings of the National Academy of Sciences*, *118*(32). https://doi.org/10.1073/pnas.2106548118