Matilde Dolfato

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Experience

Research Assistant — 2023 - Current
IGIER - Innocenzo Gasparini Institute for Economic Research — *Milan, Italy*

- Research assistant for Prof. Massimo Marinacci in the fields of applied mathematics and economics
- Mathematical modeling and solving economic choice models to reinterpret and update an existing model on smuggling

Education

M.Sc. Artificial Intelligence — 2024 - Current
Università Bocconi — *Milan, Italy*

- Relevant courses: Algorithms for Optimization and Inference, Software Engineering, DL and RL, Information Theory, Computer Vision, Linear Algebra

B.Sc. Economic and Social Sciences — 2021 - 2024
Università Bocconi — *Milan, Italy*

- Final grade: 110/110 cum laude
- Relevant courses: Modern Statistical Computing, Statistics I and II, Econometrics, Empirical Research Methods, Mathematics I and II, Macro and Microeconomics

Exchange Program — Jan 2024 - Jun 2024
Universitat Pompeu Fabra — *Barcelona, Spain*

Single Courses - B.Sc. Biotechnology — 2022 - 2023
Università Statale di Milano — *Milan, Italy*

- Courses completed with final exam: General Biology, Genetics

Projects

B.Sc. Thesis (2024)
Title: "Can Machine Learning Aid Econometrics? A Methodological Study on Heterogeneous Treatment Effects"
Advisor: Prof. Jérôme Adda
Explored and compared recent statistical and machine learning tools for causal inference, including non-parametric regressions, causal forests, and double machine learning

Image Compressor via IP (November 2024)
Image compression pipeline using K-means clustering and optimized via Integer Programming

SCIP Debug (November 2024)
Debugging and fixing SCIP source code for parsing LP and MPS formatted input files

Boolean Compiler and Evaluator (October 2024)
Program to parse and evaluate a custom input file, to output boolean tables for specified boolean expressions

Heart Disease Prediction (March 2024)
Developed a statistical predictive model to forecast heart attacks using random forests, incorporating data preprocessing, feature selection, and cross-validation (with P. M. Ruiz)

The Forgotten Many (December 2023)
Employed statistical tools for data analysis and regression-based modelling techniques to conduct robust causal inference on the roots of youth crime in Italy (with L. Chiappelli, L. D. Garbarino, G. Nespoli)

Skills

Programming: Python (advanced), R (advanced), STATA (intermediate), C and C++ (beginner)
Languages: Italian (native), English (proficient), Spanish (advanced)
Other: Data analysis, statistical modeling, research methods

Other Interests

Volleyball (professional player)
Surfing and windsurfing
Mountain hiking and skiing
Piano (private classes)
Theater and cinema (theater student at *Art Voice Academy - Centro di Alta Formazione per lo Spettacolo* from 2015 to 2019)