

SAMUELE D'ELIA

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EDUCATION

MSc in Mathematical Engineering - Quantitative Finance

Politecnico di Milano, Milan

GPA: 27/30

Enroll: Sept 2022 — Present

- Core activity concerns applications of quantitative methods to asset management, valuation of derivatives, financial engineering, risk management and trading of financial instruments.
- **Main courses:** Real and Functional Analysis, Stochastic Differential Equation, Financial engineering, Computational Finance, Algorithms and Parallel computing.

COST FinAI Summer School 2023 - Data Science For Sustainable Finance And Economics

HTW Berlin - University of Applied Sciences, Berlin

Enrolled: August 2023

- Participated in an intensive summer school focused on quantitative techniques applied to sustainable finance. In collaboration with industrial partners we developed a project on Carbon Credit and Green Bond Pricing.

BSc in Mechanical Engineering

Politecnico di Milano, Milan

Enrolled: Sept 2019 — Sept 2022

- Organized Lecture notes, exercises and sum-ups for various engineering courses. [[Link](#)]
- Additional courses on top of Bachelor exams: Mathematical analysis III, Probability theory, Statistical inference.

EXPERIENCE

Liceo Classico Statale "Arnaldo"

Maths and Physics Professor

Brescia, Italy

Jan 2023 - Feb 2023

- Taught mathematics/Calculus and Physics to five high school classes.
- Evaluated students through written and oral exams.

PROJECTS

Exotic Options Pricing Library with Python

Project Link: [Code](#)

In Progress

- Developing a high-speed quantitative finance library in Python using jax library, specialized in pricing exotic options with advanced financial techniques.

Advanced Programming for Scientific Computing challenges

Project Link: [Code 1](#) - [Code 2](#)

Milan, Italy

Feb 2024 - June 2024

- Implemented C++ programs to tackle mathematical/engineering problems as part of the Advanced Programming for Scientific Computing course.

Energy Finance project

Project Link: [Report](#)

Milan, Italy

December 2023

- Developed and calibrated a Heath-Jarrow-Morton (HJM) model for German power swaps in Q4 2024, optimizing parameters to align model-derived prices with market option prices.

Portfolio optimization project

Project Link: [Report](#)

Milan, Italy

November 2023

- Constructed diverse portfolios using various allocation strategies, evaluated performance with a focus on *S&P100* index constituents. Proposed performance analyses including backtesting with rebalancing, and compared results with a real *S&P100* ETF.
- Awarded top project in the Computational Finance class.

Recovery Risk - Final project of the Financial Engineering Course

Project Link: [\[Code/Report-Video\]](#)

Milan, Italy

May 2023 - June 2023

- Implemented Monte Carlo simulation scenarios in the case of stochastic recovery rate through the Credit Capital Model with the aim of analyze the risks associated with a financial institution's credit portfolio considering recovery risk on top of default and migration risk.
- Held a pitch and presented a video in front of an assessment committee.

SKILLS

- **Language:** Italian - native, English - Fluent.
- **Programming:** Python, MATLAB, C++, C, Git, LaTeX, Bash.
- **Libraries:** Numpy, Pandas, Matplotlib, scikit-learn, Keras and MPI for parallel computing.
- **Hobbies:** Personal Finance/passive investing, Gym enthusiast, politics.