Francesco Piatti

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Education

Imperial College London - University of Oxford *London - Oxford, UK*

PHD, MATHEMATICS *Sept 2023 - Present*

- EPSRC studentship in the Centre for Doctoral Training (CDT) in Mathematics of Random Systems.
- Supervised by Prof. Thomas Cass (Professor of Mathematical Finance).
- *Research interests:* Neural SDEs, State Space Models, Rough Paths and Signatures, AI for Finance, Algorithmic Trading.
- *Teaching assistant:* Interest Rate Models (2026, 2025), Statistics for Finance (2025), Applied Trading Strategies – Imperial Business School (2025), Probability for Statistics (2024, 2023), Mathematics for ML (2024).

Working Papers:

- Deep Calibration of Interest Rate Models with Neural SDEs. Joint with Prof. Brigo and Dr. Ferrucci.
- Structured Linear NSDEs. Joint with Prof. Cass.
- Multi-Level Monte-Carlo for Expected Signatures. Joint with Prof. Cass.

Imperial College London *London, UK*

MSCI, MATHEMATICS – FIRST CLASS HONOURS, DEAN'S LIST FINAL YEAR *Sept 2019 - June 2023*

- Thesis: *"Deep Hedging with Signatures and Neural Rough Differential Equations"* - achieved First Class.

Liceo Scientifico Filippo Lussana *Bergamo, Italy*

ITALIAN SCIENTIFIC HIGH SCHOOL DIPLOMA – OVERALL GRADE: 100/100 *Sept 2014 - July 2019*

- Standardised tests: SAT Subject test – Math Level 1: 800/800; SAT Subject test – Math Level 2: 800/800.

Publications and Pre-Prints

Piatti, F., Cass, T., & Turner, W. (2025). Random Controlled Differential Equations. Accepted for publication at *ICLR 2026*.

Cass, T., **Piatti, F.**, & Pei, J. (2025). Numerical Schemes for Signature Kernels. *SIAM Journal on Numerical Analysis, 63(6), pp.2371-2394.*

Calvo-Ordonez, S.*, Meunier, M.*, **Piatti, F.***, & Shi, Y.* (2024). Partially Stochastic Infinitely Deep Bayesian Neural Networks. In *International Conference on Machine Learning, pp. 5436-5452, PMLR.* (*Equal contributions).

Work Experience

G-Research *London, UK*

SPRING INTERN *April 2025*

- Participated in advanced workshops on Mathematics, Statistics, Quantitative Finance, and Algorithmic Trading.

Department of Mathematical Finance, Imperial College London *London, UK*

STUDENT RESEARCHER, SUPERVISED BY PROF. THOMAS CASS *July 2022 - Sept 2022*

- Worked on US recession forecasting using machine learning techniques such as recurrent neural networks, random forests, and SVM with untruncated signature, RBF and GAK kernels.
- Improved accuracy of state-of-art models presented in the Federal Reserve paper: Puglia, M., & Tucker, A. (2020). *Machine learning, the treasury yield curve and recession forecasting.*

Department of Mathematical Finance, Imperial College London *London, UK*

STUDENT RESEARCHER, SUPERVISED BY PROF. THOMAS CASS *July 2021 - Sept 2021*

- Developed a novel method leveraging signatures to estimate the correlation of multivariate time series with non-synchronous observations.
- Worked efficiently in a team of 3 people to design and implement statistical tests and simulation pipelines to evaluate model robustness.

Studio Conca Jannone Maffeis *Bergamo, Italy*

SUMMER INTERN *June 2020 - July 2020*

- Conducted financial analysis for clients and assisted in developing management and investment strategies during the COVID-19 recovery phase.
- Contributed to the development of a Python-based software to automate the analysis of financial statements and balance sheets.

Additional Information

Languages	Italian (native), English (fluent), Spanish (intermediate).
Programming	Advanced programming in Python (incl. PyTorch, JAX, pandas), intermediate in R, beginner in SQL. HPC projects on computer clusters (CPU/GPU multi-threading and multi-processing). Advanced knowledge of Office 365 and LaTeX.
Positions of Responsibility	• Member of board of directors and board of executives of United Italian Societies Ltd (June 2021 - June 2023). • President of Imperial College Italian Society (June 2021 - June 2023).