Imane Farhat

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Education

Ecole Polytechnique, Paris, France 2017 - Present
Diplôme d'ingénieur (Master's degree in Engineering) Specializing in Applied Mathematics
Third-year student at France's leading school of science and engineering (GPA: 3.96/4.00, ranked 22/540).

Coursework: • Applied mathematics: stochastic calculus in finance, statistics, Monte Carlo simulations, operations research.
• Computer science: advanced programming, algorithms and data analysis, massive data processing.
• Economics: financial markets, strategy and economics of the firm.

Preparatory classes Moulay Youssef, Rabat, Morocco 2014 – 2016
MPSI/MP*, Mathematics and physics, A+
A two-year intensive program in science to prepare for nationwide competitive exams.
Honors: Summa Cum Laude • France's Major-Excellence Scholarship.

Work Experience

BNP Paribas, Paris, France June 2019 – September 2019
Quantitative Finance and Data Science Summer Intern

- Studied interest rate modelling within an ALM framework.
- Automated the interest rate calibration using the CIR2++ model.
- Used market implied calibration on caplets/floorlets and swaptions.
- Replicated client interest rate using market rates (short and long rates).
- Implemented algorithms to best match correlated generated LIBOR and swap scenarios.

BNP Paribas, London, UK June 2018 – June 2019
Student researcher in a group project

- Worked on the use of AI for trade anomaly detection.
- Explored the use of supervised and unsupervised learning for anomaly detection in counterparty exposure profiles.
- Detected structural changes in P&L of a derivatives portfolio.

Research projects

Multi-currency arbitrage on FX options and calibration of the Wishart model September 2019 – Present
Research project with Prof. Peter Tankov

- Explored a model-free approach to detect arbitrage opportunities on FX options related to a triangle of exchange rates, for example options on the rates USD/EUR, JPY/EUR and JPY/USD.
- Calibrating the Wishart model for a triangle of exchange rates.

Simulation of rare events March 2019 – June 2019
Research project with Prof. Emmanuel Gobet and Prof. Stefano De Marco

- Worked on the insolvency cascades in a network of financial institutions.
- Assessed contagion and systemic risk in this network using Monte Carlo stochastic simulations.
- Used different techniques to simulate rare events (of very low-probability) such as the default of all banks in the network.

Leadership Experience

X-Finance, Paris, France March 2019 – Present
Quantitative analyst in a student investment fund in partnership with Edmond de Rothschild
Explored different strategies in investing in cryptocurrencies and in managing a portfolio of a total value of +80k€.

Ecole Polytechnique, Paris, France April 2018 – June 2019
Teaching assistant and oral examiner in mathematics and physics for undergraduate students

Lycée Janson de Sailly, Paris, France September 2017 – March 2018
Oral examiner in mathematics and physics
Administered and delivered classes to preparatory classes students.
Served on the board of the institution and on the class councils.

Computer Skills

Python (numpy, pandas, scikit-learn, dash) • Java • C++ • R • SQL • Matlab • Latex • Microsoft Office

Languages

French (native), English (fluent), Arabic (native), German (intermediate).

Interests

Horseback riding • Travel • Piano • Rock dance • Board Games