

Amin Belfkira

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CentraleSupélec engineering student seeking an end-of-studies research internship in quantitative finance, scientific computing, and software engineering.

Education

CentraleSupélec - Paris-Saclay University

Paris Saclay, France

Master of Engineering

September 2023 – September 2027

- **Courses:** Statistics, High Performing Computing, Probability, Project Management, Partial Differential Equations, Big Data Management
- Ranked 1st worldwide in Mathematics by the Shanghai Ranking 2022

Paris-Saclay University

Paris, France

Master 2 High Performance Computing & Simulation (CHPS)

September 2026 – June 2027

- Double degree pursued alongside the final year at CentraleSupélec
- **Courses:** Advanced Multicore Programming, Hardware Accelerator Programming (GPU), Performance Evaluation, Advanced Numerical Methods, Architecture and Code Optimization, Advanced Compilation

Lycée Aux Lazaristes

Lyon, France

Preparatory Classes for "Grandes Ecoles" (CPGE)

September 2021 – June 2023

- **MPI** : Mathematics, Physics and Computer Science

Experience

Société Générale Corporate and Investment Banking

February 2026 – July 2026

Quantitative Investment Strategies Structuring Intern

Paris, France

- Developed and backtested advanced EQD quantitative strategies with a strong focus on options-based approaches, incorporating volatility dynamics and derivatives-driven signals.
- Built the team's first backtesting framework dedicated to dispersion trades, leveraging Polars and Numba for large-scale historical analysis and rapid strategy iteration.
- Conducted in-depth performance attribution analyses using Greeks decomposition, providing insights into key risk drivers and P&L dynamics.

Crédit Agricole Corporate and Investment Bank

September 2025 – February 2026

Data Scientist Intern

Paris, France

- Conducted research on the use of artificial neural networks to optimize P&L in rates products under 1-Factor Hull-White model. Generated synthetic data using the LIBOR Market Model (LMM) for training and validation.
- Developed NLP pipelines to extract and structure quantitative signals from financial documents for integration into trading models.
- Fine-tuned an open-source SLM using TRL and qLoRA to enhance performance on domain-specific financial tasks.

Projects

Physics Informed Neural Networks for options pricing

June 2025

- Implemented a Physics-Informed Neural Network (PINN) to solve the Black-Scholes PDE for European call pricing, combining PDE residual minimization with terminal and boundary condition constraints using automatic differentiation.

Heston Model Calibration

April 2025 - May 2025

- Calibrated the Heston stochastic volatility model using Fast Fourier Transform (Carr-Madan formula) for efficient European option pricing, fitting parameters via non-linear least squares optimization.
- Benchmarked FFT-based calibration against a neural network model, comparing pricing accuracy, computation speed, and parameter stability.

Skills & Interests

Languages: French (native), English (C1), German (B2), Norwegian (basic knowledge)

Technical Skills: Python, VBA, SQL, C/C++, Excel, OCaml, HuggingFace, Git, AWS

Interests: Football, Ski, Piano, Hiking & Chess