Oussama Elghodhben

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Professional Summary

As a top-performing quantitative finance student passionate about mathematics, I use my coding skills to turn concepts into reality. I'm seeking a mentor to accelerate my learning and to whom I can add value.

Key skills: Quantitative Analysis, Financial Modeling, Derivative Pricing, Risk Management, Python, C++, Java.

Languages: English(TOEIC 960/990), French(TFI 940/990), Arabic.

EDUCATION

Sorbonne University - Ecole Polytechnique, Paris - France **Sep. 2024**

Masters degree: M2 Probability and Finance (Ex DEA EL Karoui) *3.85/4.0 GPA rank 3/75*

Relevant coursework: Stochastic Control, Derivatives and Stochastic Modeling, Numerical Probability, Financial Markets, Machine Learning and Deep Learning.

Telecom Paris, Paris - France **Sep. 2024**

Engineer's degree (Masters) *3.98/4.0 GPA*

Relevant coursework: Convex Optimization, Asymptotic Statistics, Numerical Methods, Monte Carlo Simulation, Stochastic Calculus, Machine Learning and Deep Learning, Data Analysis, Competitive Programming, c++, Java

Ecole Polytechnique de Tunisie, Tunis, Tunisie **Sep. 2024**

Engineer's degree (Masters) *3.95/4.0 GPA rank 1/50*

*Relevant coursework:*Numerical Analysis, Statistics, Probability, Algorithms and Data Structures, OOP.

EXPERIENCE

Société Générale— *Quantitative Research Intern* **april 2024 – september 2024**

- ∗ Developed a pricing library in Python using object-oriented principles, with integration tests to support multiple models, payoffs, and discretization schemes.
  ∗ Developed and implemented five variants of Multilevel Monte Carlo methods capable of handling highly exotic, path-dependent payoffs, focusing on striking the right balance between theoretical rigor and practical application.
  ∗ Benchmarked the performance and accuracy of MLMC methods against QMC implementations used by practitioners.
  ∗ Learned how and when to use pricing methods like PDE and FFT to obtain true prices, serving as a reference for comparing the accuracy of MLMC methods.
- *Keywords: Multilevel Monte Carlo, parallel programming, Discretization schemes, Stochastic Models, OOP, QMC.*

BIWARE Consulting— *Deep learning research intern* **June 2022 – August 2022**

- ∗ Designed and implemented a deep and transfer learning solution for real-time emotion recognition in visual context.
  ∗ Utilized a fusion model combining two pretrained Convolutional Neural Networks (CNNs).
  ∗ Achieved a 10% accuracy enhancement and introduced a continuous dimension for emotional state analysis.
- *Keywords: Deep Learning, Transfer Learning, CNN, Pandas, Torch, Keras, YOLO.*

PROJECTS

Credit Risk Modeling Using Intensity-Based Approaches | *Python* **2023**

- Developed an intensity-based credit risk model using CIR processes to simulate default risk and interest rate correlation, evaluating their impact on credit spreads through simulations."
- *Keywords:* Credit Risk, CIR Process, Default Intensity, Interest Rate Correlation, Credit Spreads.

Enhanced Index Tracking and Long-Short Equity Market Neutral Strategies. | *Python* **2023**

- Implemented cointegration-based index tracking and long-short market neutral strategies for the CAC40 Index. Conducted Augmented Engle-Granger cointegration tests, optimized portfolio weights, and analyzed performance metrics.
- *Keywords:* Cointegration, Index Tracking, Performance Analysis, Long-Short Market Neutral Strategies.