IMANE FARHAT
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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY Cambridge, MA
Candidate for a Master's degree in Data Science and Operations Research, August 2021 2020 - Present

- Relevant coursework: Machine Learning under an Optimization Lens, Optimization Methods, Applied Analytics, Robust Optimization, Financial Engineering, Financial Markets.
- Machine Learning Project: Found optimal timing parameters for Facebook brand building by building an optimization problem and creating novel sparse linear regression approximation algorithm.
- Analytics project: Worked in a team of 4 to leverage R and Julia to predict medical appointments no-shows and develop an optimization model to maximize hospital's revenue by double booking appointments held by patients with a high probability of no-show.
- Clubs: Quantitative Finance Club, Investment Management Club, Technology Club.

ECOLE POLYTECHNIQUE Paris, France
BSc and MSc in Applied Mathematics, GPA: 3.96/4.00, ranked 22/540 2017 - 2020

- #1 Engineering school in France.
- Relevant coursework: Stochastic Calculus in Finance, Statistics, Advanced Machine Learning, Time Series Analysis, Monte Carlo Simulations, Operations Research, Algorithms and Data Analysis, Financial Markets.
- Research projects: Multi-currency arbitrage on FX options, Simulation of rare events.
- Clubs: X-Finance (80k€ student investment fund in partnership with Edmond de Rothschild), Member of Polytechnique's Model United Nations delegation.

TECHNICAL SKILLS

- Python (numpy, pandas, scikit-learn, dash, Keras, TensorFlow), PySpark, R, Julia/JuMP, SQL, C++, Java, Azure Databricks, AWS, Matlab, Latex.
- Experience leveraging NLP and Deep Learning to improve model accuracy.

EXPERIENCE

QUBE RESEARCH & TECHNOLOGIES London, UK
Quantitative Research and Trading Intern Spring 2020

- Built price models of ETFs with a diverse composition by utilizing more than 1000 readily tradable proxy products in advanced prediction models (Python).
- Optimized models by 12% by deploying NLP methods to find matchings between stocks and ADRs in a product's composition.

BNP PARIBAS Paris, France
Data Science and Quantitative Finance Intern Summer 2019

- Automated CIR2++ interest rate modeling and calibration within an ALM framework.
- Analyzed marked implied calibration on caplets/floorlets and swaptions.
- Replicated client interest rate using market rates (short and long rates).

RESEARCH WORK

MIT OPERATIONS RESEARCH CENTER Cambridge, MA
Research Assistantship with Prof. G. Perakis Fall 2020

- Led a team of 3 to develop an advanced predictive and prescriptive approach to solve a retailer's revenue optimization problem (Julia) in a double assortment framework.
- Implemented predictive models (Python) for demand of new and old products to optimize stores' item reshuffling decisions by 6%.
- Formulated and implemented bilevel optimization problems using KKT constraints with Python and PySpark.
- Predicted store manager's suboptimal behavior through researched choice models.

BNP PARIBAS London, UK
Student Researcher in a group project 2018 - 2019

- Collaborated in a team of 5 to analyze large datasets of more than 50GB of volume and develop supervised and unsupervised models for trade anomaly detection in +500,000 counterparty exposure profiles.
- Detected major structural changes in P&L of a derivatives portfolio.

ADDITIONAL INFORMATION

- Languages: English (Fluent: 116/120 TOEFL iBT), French (native), Arabic (native), German (intermediate).
- Hobbies: Horseback riding, travel, piano, rock dance, board games.
- Volunteered at a high-school as a tutor in Mathematics and Physics.
- Awards: Finalist for McKinsey's Next Generation Women Leaders Award (2018), France's Major Excellence Scholarship (2017).