Farouk Khlifi

+33 6-66-08-69-34 • fk5093@priceton.edu • LinkeIn GitHub

EDUCATION

Princeton University — **Princeton, New Jersey**
MFin Bendheim Center for Finance — *September 2021– May 2022*

Anticipated Coursework: Statistics Theory and Methods, Econometrics, High Frequency Trading and Financial microstructure, Theoretical Machine Learning.

Ecole Polytechnique — **Palaiseau, France**
Applied Mathematics, Major GPA – 3.9 — *August 2018– August 2021*

Relevant courses : Algorithmics, Operations Research, Statistics and Machine Learning, Stochastics, Microeconomics.

Lycée Henri Poincaré — **Nancy, France**
Theoretical Mathematics and Physics Major, Computer Science minor, GPA: 4.0/4.0 Rank 1/80+ — *August 2016– August 2018*

Relevant Courses : Linear Algebra, Real Analysis, Physics, Computer Science, Chemistry, Philosophy

WORK EXPERIENCE

Eisler Capital — **London, UK**
Quantitative Research Intern — *April 2021– August 2021*

- Used innovative integer and fractional programming techniques with sparsity restraints to compress books of IR swaps; achieved 85% notional reduction and implemented the solution in C++
- Calibrated different stochastic vanilla models (SABR, Heston) from swaptions and caps and compared them with historical values to uncover trading opportunities.

BBG — **Berlin, Germany**
Data Analyst — *June 2020 – August 2020*

- Generated sales forecasts with Reinforcement Learning.
- Built an innovative model for stock management to reduce Out-of-Stock and maximize cash availability.

RESEARCH EXPERIENCE

Ecole Polytechnique — **Palaiseau, France**
Research project in Operations Research and Optimization — *September 2020– December 2020*
Advisor: Stephane Gaubert

- Proved that an innovative algorithm does not solve linear programming in a strongly polynomial time (an open question in computational optimization known as Smale's 9th problem asks whether such algorithm exists)
- Used tropical geometry, Lagrange multipliers, simulations in Julia

Napoleon-Capital — **Paris, France**
Research project in Economics — *September 2019 – March 2020*

- Used Hidden Markov Models and other Machine Learning models to cluster the financial markets into different segments, and evaluated the effect of this segmentation on predictions of returns
- Used Scikit-learn, Pytorch & hmmlearn libraries in Python with dimensionality reduction techniques.

HONORS AND ACHIEVEMENTS

- **2019 :** Honorable mention in SWERC (Europe's biggest competitive programming team challenge) for having solved one of the hardest problems in the competition
- **2019 :** Best Economics group project at Ecole Polytechnique.
- **2018 :** France Excellence and OCP Scholarships
- **2016 :** Second Prize in the Moroccan Physics Olympiad (1000+ participants)

MISCELLANEOUS

Programming languages : Python (PyTorch, Tensorflow), C++(Intermediate), Java , Julia, OCaml (functional programming)
Interests : Geopolitics and international relations (podcast animator), Electro music (composing), Philosophy, Rap music
Sport : Rowing (Ecole Polytechnique team), Tennis
Languages French :(Native), Arabic :(Native), Spanish :(Intermediate Proficiency)