Raphaël POULAIN

Final year Master Student (Computational Finance, EFREI Paris)
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I am currently finishing my Master of Science in Engineering within the Computational Finance track at EFREI Paris, my education gives me a strong background in both Computer Science and Mathematics. My research interests are in Machine Learning and Data Mining, Artificial Intelligence, and Graph Theory. My goal is to continue conducting research in these areas through the pursuit of a Ph.D. in Computer Science.

Education

EFREI Paris Villejuif, France (2018 - 2020)

Master of Science in Engineering – Computational Finance track
- This track is about building mathematical and algorithmic tools to model financial data through Information Systems and programming languages.
- Relevant coursework: Numerical Methods applied to Finance, Financial Mathematics, Econometrics, Portfolio Management, Machine Learning and Artificial Intelligence, and Algorithmic Trading.

EFREI Paris Villejuif, France (2015 - 2018)

Bachelor of Science in Engineering
- Three years bachelor's degree at EFREI Paris including 2 intensive years as a preparation to the French Grandes Ecoles.
- Relevant coursework: Oriented Object Programming (C++ and Java), Graph Theory, Calculus, Probability, Statistics, Linear Algebra, Automata Theory, and Data Structures and Algorithms.

Cape Peninsula University of Technology Cape Town, South Africa (Fall 2017)

Fall Semester abroad
- Studied abroad for one semester as part of the EFREI Paris' mobility program to develop both cultural and educational experiences.
- Relevant coursework: Web Programming, Network and Protocols, Java Programming, Databases, and Operating Systems.

Work Experience

Euronext Paris, France (April – September 2019)

Software Engineer Intern
- Built a cartography tool of the Optiq Trading system that allow engineers to better visualize the architecture of the system.
- Designed the Graph Database Model from the choice of the technology to the model itself.
- Realized a WebApp using JavaScript to keep the database up-to-date automatically and to help visualize each connection between Optiq's programs.
- Presented my project to the CTO and his team while being retransmitted live in Dublin and Porto.

Project Experience

Crypto Currency Arbitrage (September – December 2019)

Final Project for the Digital Finance class
- Built a pipeline from two different crypto currency exchanges to get the orderbook in real time.
- Stored and cleaned the data in a MongoDB database and performed data analysis on Bitcoin Cash, Cardano, and Ethereum.
- Researched statistical arbitrage opportunities within the two exchanges, built a trading algorithm and achieved satisfactory backtesting results.
- Achieved the best results of the cohort and received the best grade for the presentation.

NHL Players' Salaries Prediction Model (June – August 2018)

Personal Project

- Programmed a model that was able to predict NHL Players' salaries (2016-2017 season) using R.
- Analyzed and cleaned the dataset (in-game stats) to build a Random Forest Prediction Model that would be accurate and fast to compute.
- Chose 4 variables that proved to be the most predictive combination (Average Time on Ice, Birthday Year and Team's number of goals while the player was on the ice).
- Used a Google News API to simulate the player's popularity by getting the number of articles he appeared in during the season which had a 35% correlation with the player's salary.
- Achieved a USD 380.000 average error margin on a data set of more than 500 players.

Enrie: Self Driving Cars (January – May 2018)

Junior year's Final Project

- Programmed a parking lot simulation populated by autonomous cars to teach them how to park.
- Oversaw the technical side of this project, decided, after discussing possible solutions with the team, which languages and technologies were going to be used.
- Used a genetic algorithm to make sure our cars kept getting better through each iteration by assessing a score to each car based on the distance between the parking spot and the car.
- Used the P5 JavaScript library to support the graphics of the simulation.
- Achieved a success rate of 80% (40 cars out of 50 parked successfully).

Technical Skills and Languages

Machine Learning	Deep Learning - TensorFlow – Keras – Scikit-learn - R - Matlab
Programming Languages	Python - C / C++ - Java - C# - JavaScript – Node.js
Theoretical Computer Science	Algorithms - Automata - Graph Theory – Data Structures - Databases
Languages	Fluent in French - Fluent in English - Intermediate level in Spanish

Interests and Volunteering

Amicale Tennis de Table de Méréville Méréville, France (2008 - 2015)

- Active member of the Méréville's table tennis club, represented the club during many competitions including National Championships and was part of the club's men's team.
- Volunteered at every event held by the club, helping with the organization and setting up the venue.

Union Sportive Méréville Tennis Méréville, France (2002 - Present)

- Active member of the Méréville's tennis club, playing with the men's team for more than 6 years.
- Helped the club organizing yearly tournaments and events all year round.

References

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