Mohamed Amine RABHI

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EDUCATION

Ecole Polytechnique   Palaiseau, FR
Master of Science in Applied Mathematics, Computer Science and Economics   *Aug. 2018 – May 2021*

Lycée Sainte Geneviève preparatory class   Versailles, FR
A two-year intensive program in Mathematics, Physics and Computer Science   *Aug. 2016 – May 2018*

PROJECTS

All my projects are available *here*.

Taking mobility into account in Covid-19 epidemiological models   January 2021 – Mars 2021
- Under the supervision of Stéphane Gaubert
- Development of epidemiological models, based on discrete-time SEIR models and transport PDE models, but taking into account the mobility dimension.
- Development of dynamic models valid in transitional regimes in order to "explain" the spatial phylogenesis of the epidemic

Mean-field game approach to bitcoin mining | *Python:NumPy*   September 2020 – December 2020
- Under the supervision of Charles Bertucci
- Doing research based on a *paper* by Charles Bertucci et al.
- Developing numerical methods to solve Hamilton-Jacobi equations in different dimensions with several constraints and applying them to the equation of the *article*

Gale-Shapley stable marriage problem revisited | *Python:NumPy*   November – December 2020
- Studied an *paper* that presents the optimal cheating strategy in the G-S model
- Implemented the algorithms of the *paper* that enable women to find their optimal partner as well as the optimal cheating strategy in the men-optimal G-S model.
- Implemented the simulation of the *paper* that tackles the allocation problem of Ministry of Education in Singapore.

EfficientNet for image detection | *Python:NumPy,PyTorch*   May 2020 – June 2020
- Implemented an efficient image classifier based on a 2019 *paper*
- Adapted a classification method to detection using Faster RCNN
- Tested an efficient detection method on the African Wildlife Kaggle dataset

Credit scoring project with BNP Paribas | *Python:NumPy,pandas,scikit,PyTorch* September 2019 – April 2020
- Analyzed impact of macroeconomic factors on probability of default for credit scoring
- Processing and analyzed real life data with data science visualization tools
- Developed forecasting models for credit scoring using Random forest and Deep Neural Networks

User Scheduling in 5G | *Python:NumPy*   December 2019 – January 2020
- Focused on a user scheduling problem from a combinatory approach
- Resolved a linear programming problem using greedy and dynamic algorithms

EXPERIENCE

Research Assistant   Mars 2021 – August 2021
Squarepoint Capital   *London, UK*
- Improving existing alpha allocation framework with non-linear alpha allocation.
- Capturing nonlinear correlations among signals and controlling transaction cost at the same time

Research Assistant   June 2020 – September 2020
Storelift   *Paris, FR*
- Optimized the video tracking on Amazon Go-like stores using cutting-edge deep-learning methods
- Implemented a new generation of tracking algorithms based on reinforcement learning

Oral Examiner September 2019 – May 2020

Lycée Sainte-Geneviève *Versailles, FR*
- Organizing oral exam session on several topics like Algebra and Calculus to preparatory-class students in one of the best schools in France

Mission Leader September 2018 – April 2019

Fondation du Lycée Louis-le-Grand *Paris, FR*
- Volunteer at Lycée Louis-le-Grand Foundation, assistant to its Executive Officer
- Teaching Assistant at Lycée Louis-le-Grand, one of the top-ranking High School and preparatory class in France
- Oral examiner of the preparatory-class students

Skills

Languages: French(fluent), Arabic(fluent), English(fluent), Spanish(basic) and Russian(basic)
Programming skills: Python, Java, CamL,C++,
Libraries: pandas, NumPy, Matplotlib, scikit, PyTorch

Achievements

First prize at the Academic Maths Olympiad in Morocco
Third prize at the Academic Geosciences Olympiad in Morocco
Fourth prize at the National Olympiad of Chemistry
Excellence Major Scholarship recipient

Activities and Interests

Associative life: X-finance
Activities: Tutoring preparatory students for about 6h/week
Sport: Boxing (boxing team at Polytechnique), Powerlifting (2 years)
Cinema: independent movies