Thomas Gaviard

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Education

University of Lille — Lille, France
MSc in Data Science; Research Track — *Sep 2022 – Apr 2024*

IAE of Lille — Lille, France
MSc in Quantitative Finance — *Sep 2022 – Apr 2023*

Centrale Lille — Lille, France
MEng in General Engineering — *Sep 2019 – Aug 2022*

Lycée Louis-Le-Grand — Paris, France
Preparatory classes; Mathematics, Physics and Chemistry — *Sep 2016 – Jul 2019*

Research Experience

INRIA - RAPSODI team — Lille, France
First year master thesis, Optimization and Numerical Analysis — *Oct 2022 – Apr 2023*

- Supervised by Claire Chainais and Andrea Natale.
- Subject: "Numerical study of dynamical models of interacting Voronoi cells and their continuous limits".
- Theoretical and unumerical study of a convex optimization problem and its computation via Newton's method.
- Implementation of a numerical scheme to simulate the system evolution.
- Consideration of higher dimensional generalizations and their numerical implementation.

IAE Lille — Lille, France
Master thesis, Quantitative Finance and Machine Learning — *Oct 2022 – Apr 2023*

- Work in pair, supervised by Philippe Heinrich.
- Subject: "Pricing and Machine Learning".
- Theoretical study of gaussian processes regression.
- Applied to quantitative finance tasks like pricing of american options.

INRIA - MAGNET team — Lille, France
Internship, Machine Learning — *Mar 2022 – Aug 2022*

- Supervised by Michael Perrot.
- Subject: "Fairness in Federated Learning".
- Analysed federated algorithms under fairness constraints.
- Proposed and implemented a novel approach using gradient weighting to enforce group-based fairness.

Work Experience

Euratechnologies — Lille, France
Internship, Data Scientist — *Sep 2021 – Feb 2022*

- 3 projects of 2 months in companies, supervised by professors of Centrale Lille.
  Valued their data using Machine Learning.
- **Project 1:** Detection of bots in a multiplayer online video game via their behaviour.
  Processed a big amount of data (50 Go).
  Implemented a framework from a research paper based on Event2Vec and Attention-based LSTM.
- **Project 2:** Detection of defects on railway rails.
  Fine-tuned the object detection model Yolov5 and studied expert systems.
- **Project 3:** Multivariate and multi-steps sales forecasting.
  Carried on exploratory statistics and implemented a LSTM-based methods.
  Presented the results on a web interface and deployed a pipeline on Google Cloud Platform.

Helean — Paris, France
Data Scientist Intern — *Jul 2021 – Aug 2021*

- Improved their forecasting model using features engineering.
- Enriched data with web scraping.

Skills

Programming: Python, SQL, C/C++, Matlab, Stata, LaTeX

Libraries: scikit-learn, pytorch, tensorflow, cython, unit-testing, poetry

Technologies: Git, GCP BigQuery, AWS Redshift

Languages: French (Native), English (Professional), Spanish (Intermediate)

Hobbies

Rugby, Running, DJing