Mathis Hardion

Research Internship

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Currently in my last year of master's at ENS Paris-Saclay's MVA, I am looking for a research internship and potentially a PhD position to pursue developing my mathematical skills in data modelling and analysis while narrowing down my future area of expertise.

Interests

Stochastic models, Machine Learning & Statistics, MCMC methods, Optimal Transport, Gradient Flows, Optimization, Topological and Geometric Data Analysis

Education

Sept. 2023 - 2024	**Master MVA (Mathematics, Vision, Learning)** *École Normale Supérieure de Paris-Saclay (Gif-sur-Yvette, France)* Research-oriented mathematical degree in artificial intelligence, wide spectrum of courses followed in the above domains of interest
Sept. 2020 - 2024	**MSc in Applied Mathematics** *Télécom Paris (Palaiseau, France)* Stochastic Modelling and Scientific Computing, Signal Processing and Artificial Intelligence, 4.0 CGPA
Sept. 2018 - Aug. 2020	**French "Classe Préparatoire au Grandes Écoles"** *Lycée Carnot (Dijon, France)* MPSI/MP* - Intensive courses in Mathematics, Physics and Computer Science

Professional experience

July 2023 - Sept. 2023	**Front Office Support** *Axpo Solutions AG (Brussels, Belgium)* Constrained algorithmic financial optimization of multi-asset heat, power and CO2 production schedules for greenhouses. Applied research, Mathematical modelling, Numerical optimization (Python, LP/MILP, Simulated annealing, Evolutionary algorithm), FTP communication, Predictive price curve evaluation and comparison.
July 2021 - Aug. 2022	**Education Intern** *Learning Robots (Gif-sur-Yvette, France)* Design and improvement of high-school and post-secondary level practical sessions and videos teaching artificial intelligence algorithms and ethics through robots. Development of new features for the AlphAI robot and software (Python).
Feb. 2015	**Observation Intern** *PMC Laboratory, Polytechnique (Palaiseau, France)* Discovery of the research activities of a laboratory in physics of condensed materials.

Languages

French - Native

English - C1

German - B2

Skills

Python

numpy, pandas, scipy, sklearn, cvxpy, tensorflow, pytorch. . .

R

LaTeX

Git

C++

Office 365

Research

Various research projects at Télécom Paris and MVA, Applied research at Axpo

Teamwork

8-student team project at Télécom Paris, Close-knit team environment at Learning Robots, Two-man tool development at Axpo

Autonomy

Rigor

Academic work

Some of my academic reports can be found on my website:
Mean Curvature Motion of Point Cloud Varifolds
Sparse representation of multivariate extremes with applications to anomaly detection
Generalized Sliced Distances for Probability Distributions