BATTACH Marouane

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Summary

Ph.D. candidate in applied mathematics with a strong foundation in quantitative finance, machine learning, and optimization. Experienced in building models for real-time decision-making, anomaly detection in time series, and financial applications such as portfolio allocation and risk modeling. Proficient in Python, C++, SQL, and Git and other tools used in data-driven research.

Education

Ph.D in Computer Science Gif-sur-yvette, France
CentraleSupélec *2023-2026*

- Topic: Data-driven modeling using AI and game theory to support fundraising decision-making.
- **Advisors:** Salah Eddine Elayoubi `salaheddine.elayoubi@centralesupelec.fr`
  Tania Jimenez `tania.jimenez@univ-avignon.fr`
  Linda Salahaldin `linda.salahaldin@esce.fr`

Engineering Degree in Financial Mathematics Gif-sur-yvette, France
CentraleSupélec *2020-2023*

- Recipient of the ***National Excellence Scholarship***, awarded by the Moroccan Ministry of Higher Education and Scientific Research (3-year duration).
- Academic Projects: Hawkes process-based modeling of limit order books; exotic option pricing using PDEs and Monte Carlo methods; dynamic optimal portfolio allocation; Bitcoin forecasting with NLP. See projects https://github.com/marouaneb48

CPGE Montesquieu / Henri-Poincaré France
CPGE is an intensive two-year program preparing students for top-tier engineering schools *2018-2020*

- Achieved a GPA of 16/20 and **ranked 1st in the first year**; admitted to CentraleSupélec after succeeding in the second-year national entrance exam.

Work Experience

Teacher assistant 2023 – 2026
CentraleSupélec *Gif sur Yvette, France*

- Led tutorials and practical sessions for second-year students on core machine learning techniques: linear and logistic regression, SVMs, clustering, neural networks, deep learning, and ensemble methods.
- Supervised data modeling projects for McGill–CentraleSupélec bachelor's students.

Technologies: Python, PyTorch, Tensorflow, Pandas, Scikit-learn, SHAP

Research engineer 2021 – 2023
RTE (France's transmission system operator)*: work-study internship* *Paris, France*

- worked on real-time congestion management in power grids using Model Predictive Control (MPC).

- Developed machine learning models for anomaly detection on large-scale multivariate time series datasets.
- Presented findings in technical reports used by grid control teams.

Technologies: AMPl, Python, SQL, Linux, Git, PyTorch, Scikit-learn, Dask, Cvxpy

Additional Information

Programming Languages & Tools

- Python, C++, HPC/Parallelization, R, Linux, MATLAB, AMPL, SQL, Excel/VBA, Git

Languages

- English (fluent), French (fluent), Arabic (native), Mandarin (basic)

Interests

- Team sports (volleyball, football), cinema, and international cultures

Current research

- **Do Lenders Target Specific Causes on Pro-Social Crowdfunding Platforms?** (Under review)

  Description: Modeling Lender Behavior in Online lending Platforms with community detection algorithms and statistical analysis.

- **Crowdfunding platform performance prediction and enhancement** (Under review)

  Description: Enhancing Success Rates in Crowdfunding Platforms with Machine Learning and Genetic Optimization.

- **Optimal fundraising strategy under demand uncertainty** (Under work)

  Description: Optimal Fundraising via crowdfunding bank loans, and Equity.