Mohamed Akli Ait-oumeziane

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EDUCATION

2024-2025 **SORBONNE UNIVERSITY OF SCIENCE** Paris, France

Master 2 M2A (Mathematics, Algorithm, Learning), One of the Most Selective Programs in France - GPA: 3.8

Relevant Coursework: Learning, Non-Smooth Optimization, Deep Learning, Reinforcement Learning Natural Language Processing, Diffusion Models, Computer Vision, GPU Parallel Programming, PAC-Bayesian

2022-2025 **INSTITUT POLYTECHNIQUE OF PARIS - TRIED** Palaiseau, France

BSc & MSc in General Engineering at Télécom SudParis, Specialization at Télécom Paris - GPA: 4.0

Double degree program concurrent with M2A at Sorbonne University

Relevant coursework: Bayesian Inferences in Markovian models, Communications Theory, Vision, Advanced Signal Theory, Advanced Statistics, Generative Modeling of Graph-Based Objects.

2020-2023 **SORBONNE UNIVERSITY OF SCIENCE** Paris, France

Bachelor in Mathematics - Top 20/400

Relevant coursework: Advanced Probabilities, Optimization, Functional Analysis, Measure Theory, etc.

2020-2022 **CLASSE PRÉPARATOIRE (PCSI-PC*)** Paris, France

Focus on Mathematics, Physics & Chemistry - Top 1/55 - Admitted to Télécom SudParis

Advanced undergraduate coursework for entry to French Engineering Schools

WORK EXPERIENCE

Mar 25-Sep 25 **FactSet** Paris, France

LLM Machine Learning Engineer - R&D GenAI Intern

Worked on Hector product within Menditor team: intelligent financial data extraction system utilizing LLMs for M&A teams and hedge funds. Developed NLP pipelines for automated extraction of complex financial attributes (ratios, projections, debt) from unstructured documents. Implemented custom GenAI architectures combining data extraction and reasoning to process multi-company documents at scale. Designed automated evaluation system to measure extraction accuracy, latency, and reliability.

Tech stack: PyTorch, Transformers (LLaMA, GPT), LangChain, Vector Databases, MLflow, AWS, Lambda... .

Sep 24-Feb 25 **MINISTRY OF HIGHER EDUCATION AND RESEARCH** Paris, France

Teaching Assistant (Oral Examiner in Mathematics MP & PC*)*

Conducted weekly oral exams and provided coaching to students in Classe Préparatoire.

Jul 24-Sep 24 **ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE** Lausanne, Switzerland

Research Intern at LMS - ENAC with Dr. Llabjani

Worked on stress detection using DFOs and implemented deep learning models for signal reconstruction. Research contributing to a forthcoming journal publication. Supervised by Pr. Laloui.

May 23-Aug 23 **SOCIÉTÉ GÉNÉRALE** Algiers, Algeria

Quant Research Intern

Developed Time Series, Deep Learning Algorithms for Financial Modeling and Strategy Optimization.

Jul 22-Feb 25 **KRYPTOSPHERE FRANCE - VP** Paris, France

R&D in AI

First student union in Europe focused on Web 3.0 and AI, with over 10,000 members.

PROJECTS

- **GPU-Accelerated Heston Model Simulation** (Jan 2025 - Apr 2025)
  - Implemented Monte Carlo simulations (Euler, Exact, Almost Exact methods) for the Heston asset pricing model using CUDA for GPU acceleration.
  - Compared methods for precision and efficiency in pricing at-the-money call options.
  - Project for the "Massive parallel programming on GPU devices" course at Sorbonne University / École Polytechnique - Probability / Finance - El Karoui x M2A.
- **Optimal Transport in Neural Networks** (Dec 2023- Jun 2024)
  - Applied Optimal Transport and Sinkhorn loss for enhanced convergence in neural networks.
  - Worked on Theoretical Evolution of Self-Attention in Transformers with Sinkhorn Algorithm.
- **SuperTuxKart Reinforcement Learning Racing** (Sep 2025 - Feb 2025)
  - Implemented a complete RL pipeline for autonomous racing in SuperTuxKart using PPO algorithm
  - Employed behavioral cloning from expert dataset to initialize policy weights for faster convergence
  - Developed training and evaluation infrastructure with PyTorch and virtual cloning techniques
  - Successfully trained agents that competed effectively in racing environments with obstacle avoidance
- **Pokémon Generation with Diffusion Models** (Oct 2023 - Dec 2023)
  - Designed and implemented Score-based models and diffusion models for generating novel Pokémon images
  - Utilized CNNs for feature extraction and enhancement of generated imagery
  - Experimented with various noise schedules and sampling strategies to improve generation quality
  - Created a complete pipeline from training to inference demonstrating generative AI capabilities
- **ENS / Elmy:** Top 17 in the 2024 data challenges, working on energy prediction with advanced machine learning.

LANGUAGE & IT SKILLS

- **Languages:** French (native), English (fluent), Spanish (intermediate), Arabic (native)
- **IT:** Python, SQL, Java, LaTeX, Bash, knowledge of Solidity, JavaScript, C#, R
- **Statistics & Data Science:** NumPy, Pandas, scikit-learn, PyTorch, bbrl, Jupyter, Transformers,CI/CD

ACTIVITIES & INTERESTS

- **Archipélia Association:** Provided free tutoring to disadvantaged students.
- **Hackathons:** Won ETH Global London 2024 - Galadriel's Prize, Blockchain HEC Paris 2023 with Bongo Project.
- **Conference:** Organized Pragma 2023 – A conference held at Télécom Paris with Kryptosphere, focusing on research in Web 3.0. The event featured key participants such as Hedera, Nomadic Labs, and BPI France, among others.