

Anis Medjdoul

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SUMMARY

Applied Mathematics & Statistics student with internship experience spanning banking data science and production-grade machine learning. Proficient in statistical modeling, building production-grade ML pipelines, and portfolio optimization using Python and PyTorch. Skilled at communicating quantitative findings cleanly to cross-functional stakeholders.

EDUCATION

National Higher School of Mathematics (NHSM)

Algiers, Algeria

Master of Engineering in Statistics and Applied Mathematics

Sep. 2022 – Jun. 2027

- Relevant Coursework: Probability Theory, Statistical Inference, Linear Algebra, Numerical Analysis, Optimization, Machine Learning, Stochastic Processes

EXPERIENCE

Final Year Research Project (PFE) – Incoming

Centre de Recherche en Mathématiques Appliquées (CRMA)

Starts Sep. 2026

- Deriving an analytical/approximate formula for the false alarm probability of periodic signals detected via least-squares periodograms, addressing the correlated-peak structure caused by irregular time sampling in astronomical observations
- Framework is designed to scale to the upcoming Gaia DR4 release (Dec. 2026, ~500 TB of observation time-series data), moving beyond previously published averaged measurements to full per-epoch signal analysis
- Supervised by Pr. Tarek Medkour; co-supervised by Dr. Yassine Damerddji

Machine Learning Engineer Intern

Feb. 2026 – Jun. 2026

Numedia Mind Technologies (NMT)

Algiers, Algeria

- Designed and deployed a production-ready forensic deepfake detection pipeline using state-of-the-art computer vision architectures, matching state-of-the-art models across different metrics
- Integrated Explainable AI (XAI) techniques to surface model decision rationale, enabling non-technical forensic reviewers to interpret and validate model outputs without ML expertise
- Containerized the full ML workflow with Docker, enabling reproducible builds and seamless transfer learning deployments across development and production environments
- Benchmarked and fine-tuned SOTA models using HuggingFace Transformers and PyTorch, systematically evaluating accuracy/latency tradeoffs

Data Science Intern

Jul. 2025 – Aug. 2025

Banque Extérieure d'Algérie (BEA)

Algiers, Algeria

- Performed exploratory analysis on large transactional datasets to identify highest-revenue banking districts, delivering findings that directly shaped strategic resource allocation decisions
- Engineered interactive financial dashboards with Plotly to communicate complex revenue and performance patterns to non-technical stakeholders, replacing static reports with live, filterable views used across departments
- Applied unsupervised clustering (scikit-learn) to segment 50+ districts by performance profile, producing a tiered classification adopted in quarterly executive reporting

PROJECTS

Portfolio Optimization & Stock Trading Recommendation System | Python, Optimization, QuantMay 2024 Finance

- Won first place (Compact Hackathon) among all competing teams by delivering an end-to-end quantitative application for portfolio optimization and algorithmic stock trading recommendations, built and demoed live within the hackathon time limit

Tweet Entity Linking System | PyTorch, XGBoost, scikit-learn, FastAPI | GitHub

2025

- Built a production-grade multimodal NLP pipeline to disambiguate and link tweet entities to Wikipedia counterparts, combining DNNs, XGBoost, and SVMs in a stacked ensemble with model evaluation across all components
- Achieved accuracy on par with commercial APIs (AIDA, TagMe) while delivering inference in under 100 ms, outperforming both on latency

Real-Time AI Inference Engine | YOLOv8, PyTorch, FastAPI, Docker | GitHub

2025

- Engineered and deployed a real-time computer vision system for vehicle speed detection to a confidential Algerian company; the production system achieved sub-millisecond inference latency within a multithreaded architecture
- Exposed model predictions through a RESTful FastAPI service with strict Pydantic validation, containerized with Docker for scalable cloud deployment; optimized the YOLOv8 serving pipeline to sustain concurrent video streams without frame loss
- *Note: linked GitHub repository is an open exploratory prototype used to test and get familiar with the underlying tech stack – it does not reflect the final proprietary production system*

SQLite Engine in C | C, B-Tree, File I/O, Systems Programming
2024

- Implemented a functional relational database engine from scratch in C, replicating core SQLite features including B-Tree indexing, a SQL parser, and full CRUD operations
- Enforced memory-safe access patterns throughout; achieved benchmark query performance within comparable range of standard SQLite

CERTIFICATIONS & AWARDS

Error Correcting Codes Summer School
Summer 2025

National Higher School of Mathematics (NHSM)

- Completed an intensive research program supervised by world-leading experts in coding theory, covering algebraic ECC, quantum error correcting codes, and lattice-based cryptography fundamentals

Python for AI: Fundamentals to Advanced Models
2026

Professional Certification

- Completed intensive workshops on deep learning fundamentals, PyTorch model development, and CI/CD-ready production deployment of YOLO-based object detection systems

TECHNICAL SKILLS

Languages: Python, C, C++, SQL, Scala

AI/ML Frameworks: PyTorch, HuggingFace Transformers (fine-tuning, transfer learning), Keras, scikit-learn, XGBoost, YOLO

LLM & Generative AI: LLM integration, prompt engineering, RAG (Retrieval-Augmented Generation) systems, agentic workflows, vector databases, model evaluation, stacked ensemble NLP pipelines

Data & Visualization: Pandas, NumPy, Plotly, Excel

MLOps & DevTools: Docker, FastAPI, Pydantic, Git, GitHub, GitLab, CI/CD pipelines

Quantitative & Analytical: Statistical modeling, exploratory data analysis, clustering & segmentation, portfolio optimization, financial dashboarding

Systems & OS: Linux (Arch Linux), Bash scripting, systems programming

Soft Skills: Translating technical findings for non-technical audiences, cross-functional collaboration, team leadership, independent research