

Mohamed Amine Rezoum

AI Engineer | Data Scientist

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PROFESSIONAL SUMMARY

AI & Data Science Engineer with an engineering degree in Computer Science. Hands-on experience developing ML models, LLM-based solutions, and RAG architectures, backed by robust full-stack development proficiency (Python, Java/Spring Boot, Angular) to deliver complete, high-impact software solutions.

TECHNICAL SKILLS

- **AI & Agents :** Prompt Engineering, Context Engineering, RAG (Retrieval-Augmented Generation), MCP Server, LLM APIs, LangChain, LangGraph, n8n, Generative Model Evaluation, Fine-tuning
- **Data Science & ML :** Scikit-learn, XGBoost, NumPy, Pandas, BigQuery ML, Supervised/Unsupervised Learning, Matplotlib, Seaborn
- **Databases :** Pinecone, pgvector, PostgreSQL, MySQL, Oracle, SQL Server
- **Cloud & MLOps :** AWS, GCP, Azure, Linux Environments, Git, Docker, CI/CD pipelines
- **Programming Languages :** Python, Java, TypeScript, C/C++, SQL, HTML/CSS
- **Frameworks & Web :** FastAPI, Node.js, Flask, Spring Boot, Angular, React, RESTful APIs
- **Soft Skills :** Analytical Thinking, Cross-Functional Teamwork, Technical Communication, Problem Solving

PROFESSIONAL EXPERIENCE

Data Science Intern – KEDIO SARL *Rabat, Morocco | Jul. – Aug. 2025*
Predictive sales forecasting and business trend analysis from historical datasets

- Ingested, centralized, and structured multivariate commercial transaction datasets from legacy CSV sources.
- Performed end-to-end data cleaning and feature preprocessing using Pandas and Scikit-learn (missing value imputation, categorical encoding, feature scaling).
- Trained and tuned an ensemble prediction model using the Random Forest algorithm.
- Evaluated model accuracy via regression metrics (RMSE, MAE, R^2) and interpreted feature contributions using Feature Importance analysis.
- Engineered an interactive dashboard using Flask and Angular to deliver real-time visual sales projections to stakeholders.
- **Technologies :** Python, Scikit-learn, Pandas, NumPy, Flask, Angular, Matplotlib

Engineering Capstone Project (PFE) – Entraide Nationale *Rabat, Morocco | Feb. – Jul. 2026*
Design and development of a centralized web platform for credit delegation management

- Analyzed operational requirements and drafted comprehensive functional and technical specifications.
- Modeled the entire application architecture using UML and designed the relational MySQL database schema.
- Developed a secure, production-ready RESTful backend with Java Spring Boot, Spring Security, and stateless JWT authentication.
- Built an interactive, responsive, and modular administrative dashboard using Angular.
- **Technologies :** Java, Spring Boot, Spring Security, JWT, Angular, MySQL, REST API

Software Engineering Intern – Sofrecom Maroc *Rabat, Morocco | Jul. – Aug. 2024*
Development of an automated data reprocessing web service for telecom mediation systems

- Designed and implemented RESTful backend microservices in Python Flask to filter, validate, and remediate corrupted data records.
- Developed an intuitive, responsive user interface with Angular to streamline manual operational reviews.
- Optimized complex MySQL database queries and indexing to maintain sub-second response times on heavy batch updates.
- **Technologies :** Python, Flask, Angular, MySQL, REST API, Linux

AI & DATA SCIENCE PROJECTS

AI Academic Advisory Assistant (Tawjih Assistant) *GenAI / RAG / Full-Stack*

Conversational AI agent providing contextual guidance for post-baccalaureate academic paths

- Built an end-to-end RAG (Retrieval-Augmented Generation) pipeline : document ingestion, recursive chunking, and semantic vector indexing of official Moroccan academic catalogs and admissions criteria.
- Orchestrated multi-step LLM workflows with LangChain, leveraging structured prompt techniques (Few-shot, Chain-of-Thought) to eliminate hallucinations and enforce factual accuracy.
- Built a high-concurrency, asynchronous backend with FastAPI and paired it with a reactive React/TypeScript frontend.
- **Technologies :** Python, LangChain, LLM APIs, Vector Stores, FastAPI, React, TypeScript

Biometric Access Control via Face Recognition *Computer Vision / Deep Learning*

Real-time authentication pipeline integrating facial detection and deep feature embeddings

- Engineered a real-time computer vision pipeline featuring live video stream ingestion, Haar Cascade face detection, and image normalization with OpenCV.
- Applied Transfer Learning on the VGG19 deep convolutional network (TensorFlow/Keras) for facial feature vector extraction and individual verification.
- Calibrated confidence thresholds and cosine similarity metrics to minimize False Acceptance Rates (FAR) while sustaining real-time inference throughput.
- **Technologies :** Python, TensorFlow, Keras, OpenCV, VGG19, NumPy

Airline Flight Fare Prediction Engine *Data Science / Machine Learning*

Multivariate price estimation pipeline based on historical flight transaction data (Kaggle)

- Conducted advanced Feature Engineering on 10,000+ flight records : extracted temporal signals (seasonality, day-of-week, peak travel periods), handled route cardinality, and applied standard normalization.
- Benchmarked multiple regression algorithms (Linear Regression, KNN, Random Forest) with systematic hyperparameter optimization using GridSearchCV.
- Evaluated residuals and validation performance (R^2, RMSE, MAE), deploying the trained model via a lightweight Flask inference API.
- **Technologies :** Python, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Flask

EDUCATION

State Engineering Degree in Computer Science and Networks *2021 – 2026*
Moroccan School of Engineering Sciences (EMSI), Rabat, Morocco

High School Diploma (Baccalauréat) in Physical Sciences *2018 – 2019*
Prince Moulay Rachid High School

CERTIFICATIONS

- **IBM :** Machine Learning / Deep Learning with Python
- **Anthropic :** Building with Claude API
- **Oracle Fusion AI :** Agent Studio Certified Foundations Associate
- **The Hong Kong University :** Software Design and Project Management
- **Oracle Certified Professional :** Java SE 17 Developer
- **Meta :** React Native
- **IBM :** Introduction to Containers with Docker, Kubernetes
- **University of Colorado Boulder :** The Structured Query Language (SQL)

LANGUAGES

- **English :** Fluent (B2) | **French :** Fluent (B2) | **Arabic :** Native | **Spanish :** Elementary (A2)