

# Mehdi El Akary

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## About Me

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I am a highly driven AI/Software engineer with a strong passion for artificial intelligence and machine learning. Based in Casablanca, Morocco, I bring expertise across AI/ML systems, and building intelligent applications.

## Education

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**1337 Coding School - University Mohamed VI Polytechnic**, Digital Technologies  
Architecture

## Projects

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### **linearRegression | Linear Regression Model from Scratch**

- Implemented linear regression algorithm from scratch using Python and NumPy without relying on ML libraries.
- Developed gradient descent optimization with configurable learning rates and iteration limits.
- Built data preprocessing pipeline including feature scaling and normalization techniques.
- Visualized model performance with loss curves and prediction plots using Matplotlib.

### **ft\_transcendence | Real-Time Multiplayer Gaming Platform**

- Collaborated closely with a team to build a web platform combining gaming and social features.
- Took ownership of developing user authentication (JWT, 2FA), live chat, and dashboards for user stats.
- Designed real-time multiplayer ping-pong game with matchmaking.

### **containerization | Multi-Service Containerized Infrastructure**

- Took ownership of designing a multi-container architecture using Docker for isolated service environments.
- Configured Nginx for routing and load balancing and Redis for performance optimization.
- Building custom Docker images from scratch
- Integrated advanced bonus services including a Streamlit-based AI assistant using the Google Gemini 2.5 Flash API.

### **BeardyChat | Irc Server From Scratch Using C++**

- Built IRC server in C++ handling multiple concurrent client connections using non-blocking I/O and poll().
- Implemented authentication, channel management, private messaging, and operator commands (KICK, INVITE, TOPIC, MODE).
- Developed automated bot for server management and integrated file transfer support for enhanced functionality.

### **docAssistantChatBot | Simple RAG ChatBot with LangChain and Ollama**

- Built a Retrieval-Augmented Generation (RAG) system using LangChain, ChromaDB, and Ollama for local document querying.
- Implemented custom knowledge base creation from PDF documents, local LLM/embeddings with Ollama (mistral, nomic-embed-text), and efficient vector storage using ChromaDB.
- Developed modular components for database population, embedding generation, and interactive querying, enhancing system maintainability and scalability.

## Skills

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**Languages:** C, C++, Python, Javascript/Typescript, HTML/CSS, Sqlite, MySQL

**Technologies:** React, NextJs, FastAPI, Docker, Git/Github, HashicorpVault, Fastify, Tailwind, SkLearn, Matplotlib, Langchain, Chroma, Pandas, Numpy, Redis, Streamlit

**Soft Skills:** Communication, Fast Learning, Critical Thinking, Collaboration, Leadership and Ownership

**Spoken Languages:** Arabic, French, English