



EL HADRATI OTHMAN

DATA AND SOFTWARE ENGINEERING STUDENT

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SUMMARY

I am a second-year Data Engineering student at the National School of Applied Sciences in Al Hoceima (ENSAH). I'm passionate about data engineering , computer science and excited to apply my skills and knowledge to create innovative solutions.

PROJECTS

AI-POWERED PORTFOLIO CHATBOT | MULTI-AGENTIC SYSTEM

FASTAPI | CREWAI

- A sophisticated **chatbot API** designed to enhance **portfolio** interactions using **FastAPI** and **CrewAI**. It features a hierarchical multi-agent system, including specialized agents for retrieving GitHub repositories, providing project insights, managing user interactions, and sending emails. The chatbot ensures intelligent, context-aware conversations with advanced memory handling via **Mem0 AI**.
- Integrates **Google Gemini API** for AI-driven responses and **AgentOps** for system monitoring. Secure API design with CORS protection, session management, and Gmail SMTP for automated email communication.

ENSAH CHATBOT | RETRIEVAL AUGMENTED GENERATION

LLM | LANGCHAIN | MONGODB

- An **AI-powered conversational** assistant for ENSA Al-Hoceima, utilizing **Retrieval-Augmented Generation (RAG)** to provide academic and administrative information using **LangChain** FrameWork. Built with **FastAPI** and **LangServe** for backend processing, **Streamlit** for an interactive chat interface, and **QdrantDB** for efficient vector-based retrieval.
- Leverages Google Generative AI (**Gemini**) for natural language responses, a custom web scraping module for up-to-date information, and **MongoDB** for persistent chat history. **Docker** based deployment ensures scalability, while **LangSmith** monitors and optimizes performance.

DARIJA SENTIMENT ANALYSIS PLATFORM | NLP

AWS | MACHINE LEARNING

- A sentiment analysis platform tailored for **Darija** (Moroccan Arabic), featuring **FastAPI** for backend processing, **ReactJs** for an interactive web interface, and **DynamoDB** for feedback storage. It integrates a custom machine learning model optimized for Darija sentiment analysis by leveraging various **ML** and **DL** algorithms, including **fine-tuning** the Darija-BERT model for Darija. This enables real-time text analysis and YouTube comment sentiment evaluation.
- Leverages **Amazon S3** for model storage, facilitating **active learning** and supporting continuous model improvement to enhance accuracy and performance.

REAL-TIME ANOMALY DETECTION SYSTEM | BIG DATA

AWS SERVICES | KAFKA | PYTHON

- A real-time anomaly detection system for credit card transactions using **AWS services (EC2, DynamoDB)**, **KAFKA** for a real-time data streaming .
- Implementing an **Isolation Forest machine learning** model for effective anomaly detection and creating a **React** frontend for real-time transaction visualization.

SPOTIFY PIPELINE | AWS ECOSYSTEM

AWS SERVICES | PYTHON

- Building an automated data pipeline using **AWS services (Lambda, S3, RDS)** to extract, transform, and load **Spotify API** data on a weekly schedule, ensuring up-to-date data.
- Designed and implemented data visualization dashboards in **Amazon QuickSight**, leveraging **CloudWatch** to monitor and automate pipeline operations for continuous data refresh and insights.

MEDICALE OFFICE MANAGEMENT | FULL-STACK WEB APPLICATION

FASTAPI | REACT | MYSQL | DOCKER

- Developed an admin dashboard using **React** with **Tailwind CSS** and **FastAPI** to manage patient records, appointments, and revenue tracking, enhancing operational efficiency.
- Implemented **JWT authentication** for secure access control and deployed the system using **Docker** containers, facilitating streamlined and scalable deployment across multiple environments.

- Creating a web application enabling users to download YouTube videos, Shorts, and Playlists in various formats by simply providing the video URL, enhancing user convenience.
- Designing a responsive and user-friendly interface with **HTML**, **CSS**, and **JavaScript**, and deployed the application online for easy access without the need for software installation.

EDUCATION

Second-year Student in Data Engineering

2023 - NOW

The National School of Applied Sciences in AI Hoceima (ENSAH)

- Acquisition of the fundamental theoretical and technical skills required for an engineer.

Preparatory Cycle

2021 - 2023

The National School of Applied Sciences in AI Hoceima (ENSAH)

- gaining foundational knowledge and skills in engineering, mathematics, and sciences to effectively transition into specialized studies in data engineering.

First year of Bachelor's degree

2020 - 2021

- Faculty of Sciences Ibn Tofail (FSK UIT)

ADDITIONAL INFORMATION

• Technical Skills:

◦ **Programming Languages & Frameworks:**

- Python (FastAPI , Flask), Java (Spring , Spring Boot), JavaScript (React), C

◦ **Databases:**

- SQL (PostgreSQL, MySQL, OracleDB), PL/SQL , MongoDB

◦ **Operating Systems & Scripting:**

- Linux, Windows, Bash scripting

◦ **Artificial Intelligence:**

- Machine Learning, Deep Learning, NLP , Generative Ai , Agentic Ai

◦ **DevOps:**

- Git, GitHub, Docker, AWS services

◦ **Big Data:**

- Hadoop , Hive , Sqoop

◦ **Design & Modeling:**

- Agile/Scrum, UML

• Languages:

- **English:** Proficient

- **French:** Proficient

• Certifications & Badges:

- Over 10 certifications in Data and Computer Science from Oracle , Coursera, and others.

• Skills:

- Problem Solving
- Teamwork
- Adaptability