

Jawher Ennaceur

AI Engineer

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Experience

Deloitte, Tunis

AI Engineer Intern

Feb. 2026 – June 2026

- Led end-to-end the design and development of a **multi-agent AI platform** for insurance sales, orchestrating five specialized agents built with **LangChain** via **LangGraph** and a **shared-state architecture**, with a **FastAPI** backend and **React/TypeScript** frontend.
- Combined **LLM-based agents** with a **deterministic rules engine** to enforce eligibility conditions, ensuring reliable and auditable business-logic decisions.
- Delivered a commercial assistant agent that identified and covered **60%+** of previously missed cross-selling opportunities.
- Implemented **Graph RAG** using **Neo4j**, building a knowledge graph from unstructured documents via **OCR**, semantic segmentation, and LLM-based structured extraction.
- Designed prompt-driven agents that generated **personalized product recommendations and sales arguments** tailored to each customer's profile and qualified needs.
- **Benchmarked and evaluated multiple LLMs** (proprietary and open-source) on cost, performance, and latency to select the most suitable models for production.

Class Quiz, Sousse

AI Engineer (Intern → Part-Time)

June 2025 – Feb. 2026

- Engineered a **marker-based page-recovery system** to reliably process noisy phone-photo exam submissions, and built an **8-type exercise classification and extraction pipeline** with type-specific prompts to structure both blank exams and handwritten student responses.
- Implemented **RAG-grounded grading** against course material to score extracted student responses and generate automated feedback, cutting manual grading effort and standardizing feedback for teachers.
- Built an automated **book summarization system** extracting chapter structures from encrypted educational PDFs using **OCR** and **LLMs**, cutting manual content preparation time by 70%.
- Developed a **RAG-based chatbot** letting students ask questions grounded in course material and specific exercises, using the **Gemini API** and **LangChain** for contextualized, document-grounded answers.
- Added a **linguistic correction layer** cutting children's input errors by **40%**, and a **voice interaction layer** (speech-to-text / text-to-speech) around the existing chatbot.

Data Scale, Tunis

AI Internship

July 2024 – Aug. 2024

- Built an automated **data preprocessing pipeline** for a client purchase-intent prediction project (predicting promo eligibility from e-commerce browsing behavior), applying **conditional encoding logic** (target encoding for low-cardinality categorical features, simple encoding otherwise) and **null-value imputation** (forward-fill and median-by-order strategies) across both shared and client-specific features.
- Designed an automated **transfer-learning pipeline** for a **LightGBM** model, pre-trained on general data and automatically fine-tuned per new client with site-specific data—eliminating manual retraining and enabling seamless onboarding of new e-commerce clients.
- Built a **chatbot** with **Google Agent Builder** for the startup's website, integrating a categorized document knowledge base and an API for service booking, to enhance customer support.
- Created **Flask APIs** to serve trained ML models in production and automate data-processing services.

Projects

RAG Chatbot Assistant

- Built a **RAG-powered chatbot** combining semantic document retrieval with LLM generation to answer questions from PDFs and Word documents.

- Used a **vector database** to retrieve relevant chunks and a contextualization step to handle multi-turn conversations.
 - Persisted conversation history in **PostgreSQL** to maintain context across sessions.
 - Exposed a **REST API** for interactive chat, with support for document ingestion.
- Tools & Technologies:** Python, LangChain, Chroma, FastAPI, HuggingFace, PostgreSQL.

LLM Product Advisor – Smart Shopping Assistant

- Built a shopping assistant powered by **LangChain** and **Google Gemini LLMs** for contextualized product recommendations.
 - Implemented **intent extraction** to interpret natural language queries and extract product filters.
 - Developed **fuzzy matching** using **Levenshtein distance** to handle typos and product name variations.
 - Generated **personalized recommendations** tailored to user preferences and product attributes.
 - Designed **dynamic prompts** for context-aware responses and clarification handling.
- Tools & Technologies:** Python, LangChain, Google Gemini API, Levenshtein, FastAPI, Git.

Skills

AI: Machine Learning, Deep Learning, Computer Vision, NLP, LLM, RAG, Multi-Agent Systems, Transfer Learning.

Data: Data Science, Data Analysis, BI, ETL, SQL, NoSQL.

Frameworks & Libraries: LangChain, LangGraph, CrewAI, FastAPI, Flask, PyTorch, TensorFlow, Scikit-learn.

Cloud & DevOps: Docker, Azure, GCP, MLOps.

Languages: Python, C++, C, Java, JavaScript, TypeScript.

Education

Higher Institute of Applied Sciences and Technology of Sousse.

Sept. 2021 – July 2026

Engineering Degree in Computer Science (Master)

Eljem High School

June 2021

Baccalaureate in Experimental Sciences

Certifications

Building LLM Applications With Prompt Engineering

Nov. 2025

Institution: NVIDIA

Generative AI with Diffusion Models

March 2025

Institution: NVIDIA

Deep Learning Specialization

April 2023

Institution: Deeplearning.AI

Machine Learning Specialization

Nov. 2022

Institution: Stanford University & Deeplearning.AI

Leadership & Activities

AI INSTRUCTOR - Multiple Clubs & Events

2022 – 2026

- Trained **25+ members** in AI fundamentals through **10+ practical sessions** at NATEG club.
- Led an AI workshop at **Hackathon 1.0** for **60+ participants**.
- Taught **CNN concepts** and guided participants through hands-on AI projects.

NATEG ISSATso Club - Event Manager and HR Member

2023 – 2025

- **Event Manager:** Orchestrated **5+ major events** (graduation ceremony, Ideathon, information sessions) for **200+ attendees** combined.
- **HR Member:** Managed interpersonal conflicts and strengthened team cohesion among **30+ club members**.

Tunisian Scout Association - Lead of Group

2019 – 2025

- Earned the **Wood Badge**, an international scout leadership certification.
- Led camps and events promoting teamwork, leadership, and community engagement.

Languages

English (Fluent) / **French** (Fluent) / **Arabic** (Native)