

# Mohamed Ali Ragoubi

AI Software Engineer

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## PROFESSIONAL EXPERIENCE

### Intern in Hardware Architecture Exploration for TinyML

September – December 2025

*Sup'Com - Higher School of Communication of Tunis, Tunis, Tunisia (Supervised Project)*

- Profiled ML performance (RAM/CPU/energy) on Xilinx, STM32, Jetson to create TinyML deployment guides.
- Deployed models via ONNX, delivering a full technical report and a functional demonstration.

### AI Web Development Intern

Summer 2024

*SFM Technologies, Tunis, Tunisia*

- Built a conversational AI (Python, FastAPI, LangChain) with a RAG pipeline secure agent for MySQL queries.
- Developed a full-stack test environment (Angular, SSH Tunneling) prepared for Docker containerization.

### Web Development Intern

Summer 2024

*Startup ViZmerald, Tunis, Tunisia*

- Developed a 3D web app in an Agile team, increasing customer engagement by 20%.
- Analyzed frameworks (WordPress, Verge3D, React) and created detailed deployment documentation.

## PROJECTS

### ReportGen: AI-Powered Report Generator – Python, FastAPI, Angular, Gemini API, ChromaDB, Docker, LaTeX

Developed a multi-agent system to automate LaTeX report generation from natural language queries, reducing document creation time.

- Used Gemini LLM to generate validated LaTeX content via a Python-based cleaning and escaping pipeline.
- Engineered a RAG module (Sentence Transformers, ChromaDB) to ground AI outputs and enhance accuracy.

### Market Intelligence Platform – Python, Docker, PySpark, FastAPI, Supabase, React

Full-stack analytics platform delivering real-time insights from a production-grade, containerized ETL data pipeline.

- Built a containerized PySpark ETL pipeline for 28K+ records with automated refresh on Supabase (PostgreSQL).
- Applied FinBERT for sentiment analysis, finding a >0.7 correlation between news sentiment and stock prices.

### Diffusion Model from Scratch – PyTorch, Transformers, CLIP, UNet

Implemented a generative model from paper to synthesize images from text, including a complete custom training pipeline.

- Built the core architecture using a UNet for noise prediction and CLIP for text-conditional generation.
- Trained the model to generate coherent images from novel prompts, validating the from-scratch implementation.

### Service-to-Service: Skill Exchange Web App – NodeJS, React, NextJS, ExpressJS, MongoDB

Full-stack platform connecting users for local skill exchange, featuring real-time chat and scheduling functionalities.

- Designed and built the backend with RESTful API endpoints (Express) and a flexible NoSQL database (MongoDB).
- Implemented real-time features that led to a 30% increase in average user session duration.

## EDUCATION

### Engineering Degree, ICT

2023 – 2026

*Sup'Com - Higher School of Communications of Tunis*

### Preparatory Program, Physics Chemistry

2021 – 2023

*ESSTHS, Hammam Sousse – National Engineering Entrance Exam Ranking: 51/1178*

## SKILLS

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<b>AI &amp; Data Science</b>	Machine Learning, Deep Learning (CNN, RNN), NLP, Generative AI, Computer Vision, RAG, PyTorch, Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn
<b>Software Development</b>	Python, C/C++, Java, JavaScript, HTML/CSS, SQL, Algorithms, Data Structures, Dynamic Programming
<b>Tools &amp; Frameworks</b>	Git, FastAPI, Angular, React, NodeJS, PySpark, Docker, HuggingFace, Kaggle, Databases (SQLite, OracleDB, MongoDB, Supabase)

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## ADDITIONAL INFORMATION

**Certificates:** NVIDIA Data Eng., Coursera ML, DataCamp ML Java, CISCO CCNA, AWS Cloud Practitioner, Azure AI Fundamentals

**Languages:** English C1 (TOEIC 975), French (Fluent), Arabic (Native)

**Activities:** Junior Enterprise Member, Public Relations Manager at Sup'Cast, AI Study Trip (Barcelona, June 2025)