MAYSSA BEN ROMDHANE

AI Engineer - RAG, LLM Agents & Computer Vision

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AI Engineer with 2 years of experience working on production LLM systems. At HealthCare Innovation, I design the AI architecture and RAG and agentic pipelines powering 10 HealthTech platforms, with self-hosted open-weight LLMs on GPUs and continuous evaluation of grounding and hallucinations. Previously, I worked in R&D at Continental on semantic segmentation pipelines and zero-shot 3D camera-LiDAR fusion analysis, developing an auto-annotation approach that reduced labeling costs by more than two thirds.

PROFESSIONAL EXPERIENCE

AI Engineer - RAG & Agentic Systems | HealthCare Innovation, Monastir *Jan 2026 - Present*

- Designed and productionized the AI stack for **10 HealthTech/HSE platforms**: RAG architecture, agent orchestration and evaluation harnesses.
- Deployed a **sovereign on-premises RAG system** with open-weight LLMs on dedicated GPUs, hybrid semantic and keyword search, and systematic source citations, reducing latency by **40%**.
- Implemented continuous evaluation (**RAGAS, LLM-as-judge**, Langfuse) and Qdrant/ChromaDB search across **10,000+ documents**, improving relevance by **25%**.
- Orchestrated **LangGraph** multi-agent systems with human-in-the-loop validation (HITL), failure recovery and end-to-end tracing.

Generative AI Engineer | Freelance, Monastir *Mar 2025 - Dec 2025*

- Built a Stable Diffusion/DALL-E application with **LoRA** fine-tuning, generating an image in **under 5 seconds**.
- Deployed a FastAPI backend and React interface with Docker, optimizing GPU inference.

Engineering Final-Year Project - Computer Vision R&D | Continental, Lindau, Germany *Feb 2024 - Nov 2024*

- Designed a road semantic segmentation pipeline for ADAS using **zero-shot foundation models**, achieving **99% precision**.
- Automated image and point-cloud annotation, reducing labeling costs by **70%**.
- Evaluated and compared segmentation architectures in **PyTorch** on automotive data: **+8% mIoU** for the selected model.

Engineering Intern | Wisi, Monastir *Jun 2023 - Aug 2023*

- Developed adaptive multi-bitrate streaming and a local test server with Docker, Node.js and Shaka Packager.

Bachelor's Final-Year Project | Carthage Solutions / Monastir University Hospital *Feb 2021 - Jun 2021*

- Developed an **end-to-end patient-specific dose prediction model** for the hospital's pharmacology department (Python, R, scikit-learn), with predictions **validated by the department's physicians**.

PROJECTS

- **Early Melanoma Detection (2023, academic)**: skin lesion classification using VGG16/ResNet-50, SVM, transfer learning and Albumentations data augmentation.
- **ECG Classification (2022, academic)**: signal preprocessing, spectrogram conversion and CNN classification with TensorFlow/Keras.
- **Vibration Classification (2022, academic)**: comparison of SVM, logistic regression and neural networks on vibration sensor data.

EDUCATION

Engineering Diploma in Applied Computer Science - Intelligent Systems
National Engineering School of Sousse (ENISo) | 2021 - 2024

Bachelor's Degree in Computer Science
Faculty of Sciences of Monastir | 2018 - 2021

SKILLS

- **Computer Vision & Deep Learning:** PyTorch, TensorFlow, OpenCV, ViT/Swin, CNN (ResNet, YOLO, U-Net), SAM/SEEM/CLIP, Image Segmentation, Object Detection, 3D LiDAR, Camera-LiDAR Fusion, ONNX, TensorRT, ONNX Runtime.
- **Generative AI & NLP:** LLMs, RAG, LoRA/QLoRA, LangChain, LangGraph, MCP, AI Agents, Prompt Engineering, embeddings, hybrid BM25 search, Qdrant, ChromaDB, Hugging Face, on-premises deployment of open-weight LLMs.
- **Evaluation & Observability:** RAGAS, LLM-as-judge, Langfuse, versioned reference datasets, grounding and hallucination mitigation.
- **MLOps & Cloud:** Docker, Kubernetes, CI/CD, AWS, FastAPI, REST APIs, Redis, BullMQ, Git, Linux.
- **Programming & Data:** Python, C++, TypeScript, SQL, NumPy, pandas, scikit-learn.

LANGUAGES

Arabic native | French C1 | English C1