

Marco Magdy Fayek Danyal

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Summary

AI/ML Engineer with hands-on experience in building LLM-powered applications, RAG systems, AI agents, and workflow automation solutions. Skilled in Python, LangChain, ChromaDB, FastAPI, Docker, prompt engineering, and integrating AI services with backend systems. Experienced in developing document-based Q&A systems, conversational AI applications, and automation workflows using LLMs and n8n.

Technical Skills

- Programming:** Python, JavaScript, C/C++, Java
- LLMs & Generative AI:** OpenAI API, Gemini API, Open-source LLMs, Prompt Engineering, LLM Evaluation, Conversational AI
- RAG & Vector Databases:** Retrieval-Augmented Generation, ChromaDB, Embeddings, Semantic Search, Document Chunking, Vector Search
- AI Agents & Automation:** LangChain Agents, Tool Calling, Multi-Agent Workflows, n8n, Workflow Automation
- Backend & Deployment:** FastAPI, Flask, REST APIs, Docker, Git, GitHub, Linux
- Machine Learning:** PyTorch, TensorFlow, Scikit-learn, NLP, Deep Learning, Computer Vision, YOLO, OpenCV
- Cloud & Infrastructure:** AWS Fundamentals, Linux Administration, Networking

Projects

- AI Agent Workflow Automation System** Jul 2025
Developed AI agents using LangChain and LLM APIs to automate task execution, summarization, email drafting, and structured output generation. Integrated agents with n8n workflows and FastAPI backend services. Implemented tool-calling logic, prompt engineering, and response validation to improve task completion accuracy. Containerized the system using Docker for consistent deployment.
- Multi-LLM Conversational AI App** Apr 2025
Built a conversational AI backend that supports multiple LLM providers including OpenAI/Gemini APIs and local open-source models. Designed prompt templates and evaluation checks to compare model responses across quality, latency, and reliability. Integrated the system with FastAPI APIs for real-time interaction and backend communication.
- RAG-Based Document Q&A System** Mar 2025
Built a RAG-based document question-answering system using LangChain, ChromaDB, FastAPI, and Docker. Implemented document ingestion, text splitting, chunking, embedding generation, vector storage, semantic retrieval, and LLM-based answer generation. Integrated paid and free/open-source LLMs to compare response quality, latency, and cost. Improved answer relevance using prompt templates, retrieved context injection, and output evaluation.
- AICO Application** Nov 2024
Developed an AI-powered psychotherapy chatbot with sentiment-aware response generation.
 - Integrated NLP-based sentiment detection to adapt responses based on user emotional state.
 - Improved sentiment detection accuracy by 92% and reduced response latency by 78%.
 - Managed user interaction flow and backend response handling for real-time conversations.
- Real Time Object Detection** May 2023
Developed a real-time object detection system using YOLO and OpenCV, achieving 96% accuracy on a custom dataset. Implemented model deployment for real-time applications and optimized inference for Edge AI devices.

Education

Bachelor's Degree in Artificial Intelligence

Major: Intelligent Systems
College of Artificial Intelligence, Arab Academy for Science, Technology and Maritime Transport
Sep 2020 – Sep 2024
Grade: Good with Honors

Technical Volunteering

- Technical Volunteer / SysOps Team** 2023 – 2024
ECPC, ACPC, and International Olympiad in Informatics (IOI)
- Provided technical support during national and international programming competitions, including system setup, contestant-floor support, and troubleshooting.
 - Assisted with Linux/networking configuration, machine preparation, and real-time issue resolution during live contest environments.
 - Supported infrastructure reliability by resolving hardware, software, and network issues under time-sensitive conditions.
 - Helped maintain stable contest operations with minimal downtime across multiple large-scale technical events.

Certifications

- [Generative AI for Developers Diploma \(E Youth\)](#) 24 Feb – 18 Apr 2025
- [Intro to LLMs \(365 Data Science\)](#) 21 Nov 2024
- [AI Introduction and Applications \(IMPACT\)](#) 8-19 Aug 2023
- [Developing Applications using Java Programming \(ITI\)](#) 7-18 Aug 2022