

Omar Alghannam

6th of October, Giza | 01013615904 | oa5429946@gmail.com | linkedin.com/in/omar-amr-56270232a | github.com/Omar-Alghannam

omaralghannam-portfolio.vercel.app

EDUCATION

Zewail City of Science and Technology | Sep 2024 – May 2028 | GPA: 2.8

B.Sc. in Data Science and Artificial Intelligence — 6th of October City, Giza

Relevant Coursework: Data Structures, Probability, Python Programming, Linear Algebra, Database, Machine Learning, Data Mining, Algorithms

EXPERIENCE

Microsoft Data Engineer Intern | Digital Egypt Pioneers Initiative (DEPI) · Remote

Dec 2025 – Present

- Trained in building and managing modern data systems supporting analytics, AI, and business intelligence solutions.
- Developed practical skills in database management, data pipelines, big data processing, and cloud-based data engineering using Microsoft Azure technologies (Azure Data Factory, Azure Synapse Analytics, Databricks).
- Focused on scalable data architectures, deployment practices, and AI-driven data workflows through hands-on projects aligned with industry demands.

AI/ML Engineer – LLM Fine-Tuning | Freelance Contract (Upwork) · Remote

Jun 2026

- Engineered an end-to-end fine-tuning pipeline for Gemma-4 (27B) using PyTorch, HuggingFace PEFT, and LoRA to adapt large-scale models for specialized customer support automation.
- Implemented custom loss-masking logic for reasoning models, enabling dynamic supervision of internal reasoning traces (<think> blocks) versus final generative outputs to optimize model logic and factual accuracy.
- Optimized models for high-performance inference by merging LoRA weights and utilizing NVIDIA modelopt for advanced NVFP4 calibration, enabling ultra-fast deployment in vLLM.

PROJECTS

UK Road Accident Analytics Platform (DEPI Graduation Project)

| Airflow, FastAPI, React, PostgreSQL, Docker, Azure

July 2026

- Engineered an automated ETL pipeline using Apache Airflow to ingest, clean, and process over 500,000 historical accident records into a PostgreSQL data warehouse.
- Built a high-performance FastAPI backend to serve real-time analytics and Machine Learning severity predictions to a live, interactive React dashboard.
- Containerized the entire microservices architecture using Docker and deployed the full-stack system to Microsoft Azure for scalable, cloud-based production.

CineMatch AI – Recommendation System | FastAPI, PyTorch, Supabase

March 2026

- Engineered a personalized AI movie platform using TMDB API to construct dynamic user profiles based on real-time interactions.
- Optimized candidate retrieval using TF-IDF and SBERT embeddings; built hybrid ranking pipeline with SVD collaborative filtering and PyTorch Neural Network via 64-dimensional embeddings.
- Deployed scalable FastAPI/Supabase backend with automated model retraining, verified through NDCG@10 and Precision@10 metrics.

Football Search Engine | Python, Streamlit, DuckDB, Ollama, SerpAPI

2025

- Built a full-featured football search engine with multiple ranking algorithms: TF-IDF, Semantic (nomic embeddings), Word2Vec Skip-gram, and a weighted Hybrid mode.
- Implemented query expansion via LLM (Ollama llama3.2), Word2Vec, and co-occurrence matrix; word representations include One-Hot, CBOW, Skip-gram, and GloVe-style SVD.
- Integrated SerpAPI for dynamic corpus growth, DuckDB for persistent storage, and IR evaluation metrics (Precision, Recall, F1, MAP, nDCG).

Mowasla – Uber-like Ride-Hailing System | C#, SQL

Dec 2025

- Developed backend in C# with SQL database modeling Passenger, Driver, Vehicle, Ride, and Payment entities.
- Built passenger features (ride requests, fare estimation) and driver features (accept/reject, earnings dashboard).
- Designed admin panel for user management, ride monitoring, and system statistics generation.

Premier League Analytics Dashboard | AmCharts 5, Data Visualization

Dec 2025

- Built interactive dashboard analyzing the 2023-24 Premier League season with advanced visualizations (bar, scatter, donut, area charts) using AmCharts 5.
- Visualized KPIs (goals, assists, squad value, wage efficiency, revenue) with dynamic filters; delivered actionable analytics on player performance and club ROI.

TECHNICAL SKILLS

Languages: Python, C++/C, C#, SQL, JavaScript, TypeScript, HTML/CSS

Backend: FastAPI, Flask, REST APIs, Node.js, System Design

ML/AI: PyTorch, Scikit-learn, TensorFlow, NLP, LLM Fine-tuning (LoRA/PEFT), RAG, LangChain, Recommendation Systems

Data: Pandas, NumPy, Data Analysis, Data Visualization, Azure Data Factory, Azure Synapse Analytics, Databricks

Tools: Git, Firebase, Supabase, DuckDB, n8n, Streamlit, Playwright, Selenium, BeautifulSoup, vLLM, HuggingFace

Frontend: React, Next.js, Tailwind CSS

ACHIEVEMENTS

- Certificate of Participation – 20th Undergraduate Research Forum (UGRF), Nile University, Egypt (Aug 2025)
— Project: Cleaning System Robot