

# Marwan Mohammed

## MLOps Engineer

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### About

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An Intelligent Systems Engineer building expertise in MLOps and AIoT. I enjoy working with machine learning models, building intelligent systems, and taking projects from ideation to deployment, and then maintaining and scaling them long-term. Whether it's building intelligent systems or optimizing workflows, I strive to develop maintainable and scalable intelligent systems, grounded in research and real-world applicability.

### Portfolio

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[Portfolio](#) | [GitHub](#) | [LinkedIn](#) | [Kaggle](#) | [Medium](#)

### Education

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#### Bachelor of Computer Science

October 2022 - July 2026

Menofia University, Faculty of Artificial Intelligence, Department of Intelligent Systems

Grade(GPA): 3.49/4

### Languages

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Arabic(Native) - English (C2 Proficient)

### Technical Skills

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**Programming:** Python, C/C++, Object Oriented Programming (OOP), Linux, SQL

**Machine Learning and Data Science:** Scikit-Learn, PyTorch, Pandas, NumPy, AI model Design, Experimentation.

**Data Analysis:** Data Visualization and Data Wrangling, Exploratory Data Analysis (EDA)

**MLOps:** Docker, Kubernetes, Terraform, FastAPI, CI/CD Pipelines(Jenkins, GitHub Actions)

**Cloud Infrastructure:** AWS (EC2, EKS, ECS, RDS), Terraform

**Mathematics:** Linear Algebra, Calculus, Statistics and Probability

**Robotics & IoT:** Arduino, ArdionoCloud, ESP32, IoT Communication, Embedded Systems

### Soft Skills

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Adaptability, Commitment, Communication Skills, Collaboration, Experimentation, Presentation Skills, Project Development, Public Speaking, Problem-Solving, Quick Learning, Research and Development, Teamwork

## Work Experience

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### Independent MLOps Engineer

July 2025 - Present

### Self-Employed - Cairo - Contractor

- Rabwah
  - Improved, Dockerized, and deployed a production-ready RAG system
  - Built a CI/CD Pipeline to automate image builds, pushing to Dockerhub, and deployment to the client's server

### Student Guide

February 2025 - Present

### CLS - On-Site - Cairo - Part Time

- Helped students navigate their newly learned skills in the DECI program.
- Created supportive environments for skill development and growth.

### Student Guide

July 2023 - February 2025

### YAT Learning Center - On-Site - Cairo - Part-Time

- Helped students navigate their newly learned skills in the DECI program.
- Created supportive environments for skill development and growth.

### Software Engineer & Data Analyst

August 2024 - November 2024

### Al-Adel Charitable Association - On-Site - Cairo - Contract

- Led full lifecycle development of a custom management system.
- Built data dashboards for informed decision-making.
- Focused on iterative improvements for performance and usability.

### DevOps Intern

August 2024 - September 2024

### Banque Misr - Hybrid - Cairo - Internship

- Gained exposure to enterprise DevOps practices.
- This experience inspired my current pursuit of an MLOps career.

## Volunteer Experience

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### Vice-President

October 2023 - October 2024

### AI Entrepreneurship Club - Hybrid - Menofia University

- Rebuilt organizational structure.
- Supervised 7 communities and 5 committees.
- Led strategic oversight and hands-on execution of events and programs.

### Head of Human Resources Committee

February 2023 - September 2024

### AI Entrepreneurship Club - Hybrid - Menofia University

- Led all HR operations while wearing multiple hats, from performance tracking to creating report templates and boosting team morale.

- Frequently stepped outside my core responsibilities to contribute graphic design, video editing, scripting, and copywriting when needed.

## Projects

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### End-to-End MLOps Pipeline: Deep Learning Deployment | *Personal Project*

- Modular ML Design for easy training and testing with configurable parameters.
- Used TensorBoard for experiment tracking.
- Applied industry best practices to deploy the model
- Used Docker for containerization and reproducible deployment, and Kubernetes for container orchestration

**Tech Stack:** PyTorch, FastAPI, Docker, Kubernetes, TensorBoard, TorchScript, Matplotlib, Git

**Link:** [github.com/MarwanMohammed2500/End-to-End-MLOps-Pipeline-Deep-Learning-Deployment](https://github.com/MarwanMohammed2500/End-to-End-MLOps-Pipeline-Deep-Learning-Deployment)

### MCQ Generator | *Personal Project*

- Built a scalable pipeline for automated MCQ generation from large documents.
- Implemented modular design with Streamlit UI for file upload, embeddings, and LLM-driven question generation.
- Integrated LangChain with Gemini embeddings-001 and Gemini 2.5-flash for vector storage and inference.
- Designed a lightweight quality control using similarity search to filter weak questions.

**Tech Stack:** LangChain, Streamlit, Google Gemini, LLMs, Vector Databases, Git

**Link:** [github.com/MarwanMohammed2500/EncandoAI\\_Scalable\\_Question\\_Generation\\_System](https://github.com/MarwanMohammed2500/EncandoAI_Scalable_Question_Generation_System)

### Neural Network Techniques Explorer | *Academic Project*

- 6 ANN architectures implemented from scratch (RBF, PCA, SOM, ART1, Fuzzy, GA)
- Developed an intuitive web interface using Streamlit

**Tech Stack:** Python, Streamlit, Pandas, Matplotlib, Git

**Link:** [github.com/MarwanMohammed2500/RBF-Calculator](https://github.com/MarwanMohammed2500/RBF-Calculator)

### Smart Door/Lock | *Academic Project*

- Implemented a face recognition model using OpenCV
- Used an ESP32 hooked up with an LCD Display and an external Numpad to use password access.
- Added the ability to manually override the lock
- Sends intrusion alerts via Telegram.

**Tech Stack:** Python, Embedded C, Embedded Systems, Computer Vision, Arduino, ESP32, IoT

### Egyptian ID OCR model | *Academic Project*

- Used a pre-trained model for embedding generation.
- Trained a model to extract information from Egyptian National ID Cards properly

**Tech Stack:** Python, OpenCV, AI model training, OCR model

**Link:** [github.com/NASO7Y/OCR\\_Egyptian\\_ID](https://github.com/NASO7Y/OCR_Egyptian_ID)

### Celebrity Face Recognition CV Model | *Personal Project*

- Built a face recognition pipeline using a pre-trained embedding model, with support for unknown detection and custom reference sets scraped from public sources.

**Tech Stack:** Computer Vision, Pretrained Models, Video Processing, Embedding Similarity

**Link:** [github.com/MarwanMohammed2500/Celebrity\\_Face\\_Recognition](https://github.com/MarwanMohammed2500/Celebrity_Face_Recognition)

### **ML Web App for Predicting Ad Campaign Responses | *Personal Project***

- Used Django for preprocessing, model inference, and serving responses logic.
- Containerized the full application using Docker for easy deployment and reproducibility

**Tech Stack:** Python, Django, Docker, Git, Pandas

**Link:** [github.com/MarwanMohammed2500/Ad-Campaign-Demographical-Prediction](https://github.com/MarwanMohammed2500/Ad-Campaign-Demographical-Prediction)

### **Simulating Non-Linear Behavior in Logistic Regression | *Personal Learning Project***

- Simulated a decision tree behavior within a logistic regression model through log-odds binning and one-hot encoding transformations.
- Gained practical insights into feature interactions, transformation techniques, and model interpretability
- Conducted a detailed exploratory analysis to reveal non-obvious relationships between features and the target variable.
- Improved model F1-score by 6% and accuracy by 4%

**Tech Stack:** Python, SciKit-Learn, Feature Engineering, Pandas, matplotlib, Seaborn

**Blog Post Link:** [Engineering Non-Linearity into Logistic Regression \(Like a Decision Tree!\)](#)

**Kaggle Notebook Link:** [Turning a Logistic Regression into a Decision-Tree](#)