

Marwan Mohammed

Data Scientist

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[Personal Portfolio](#)

About

An undergrad Intelligent Systems Engineer building expertise in Data Science, MLOps, and AIoT (Artificial Intelligence of Things) by bridging my DevOps experience with machine learning, robotics, and IoT. I thrive on solving complex problems with innovative techniques and enjoy turning ideas into reality through cutting-edge projects and research. Whether it's building intelligent systems or optimizing workflows, I take a hands-on, results-driven approach to every challenge, while ensuring quality and maintainability long-term.

Education

Bachelor of Computer Science

Oct 2022 -

Jul 2026

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

Grade(GPA): 3.48/4

Languages

Arabic(Native Tongue) - English (C2 Proficient)

Technical Skills

MLOps Foundations: Django, Docker, Kubernetes, CI/CD Pipelines, Model Deployment (Basic)

Machine Learning and Data Science: Scikit-Learn, TensorFlow, NumPy, Pandas, Matplotlib, Data Processing, Statistical Modeling

Cloud Infrastructure AWS (EC2, EKS, ECS, RDS), Terraform, Bash

Data Analysis: Data Wrangling and Visualization, Exploratory Data Analysis

Programming: Python, Infrastructure-as-Code (IaC), C/C++

Soft Skills

Adaptability - Commitment - Communication Skills - Conflict Handling - Presentation - Public Speaking - Problem Solving - Quick Learning - Research and Development - Teamwork and Leadership

Work Experience

Student Guide

Feb 2025 - Present

CLS - On-Site - Cairo - Part Time

I work as a student guide in the Egyptian Ministry of Communication's DECI, helping students navigate their desired paths. I earned their trust and appreciation by creating a healthy environment where students can openly express their weaknesses and identify their strengths. All while developing valuable technical expertise and enhancing a new set of skills of my own.

DevOps Engineer

Jan 2025 - Present

Prezza - Remote - Contract

Joined mid-development to help scale infrastructure, troubleshooting issues while keeping teams aligned. Cross-functional work, including Django development, to meet project deadlines.

Student Guide

Jul 2023 - Feb 2025

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

I worked as a student guide in the Egyptian Ministry of Communication's DECI, helping students navigate their desired paths. I earned their trust and appreciation by creating a healthy environment where students can openly express their weaknesses and identify their strengths. All while developing valuable technical expertise and enhancing a new set of skills of my own.

Software Engineer & Data Analyst

Aug 2024 - Nov 2024

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

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

DevOps Intern

Aug 2024 - Sep 2024

Banque Misr - Hybrid - Cairo - Internship

I was selected for the prestigious *Al-Rowad* Internship Program at Banque Misr. Inspired by this exposure, I'm now actively pursuing a career in MLOps, aiming to bridge the gap between machine learning and scalable, efficient deployment practices.

Volunteer Experience

Advisor

Oct 2024 - Present

AI Entrepreneurship Club - Hybrid - Menofia University

When AIEC entered its third season, the club underwent a full leadership refresh—bringing in new energy but also needing experienced guidance. I stepped in as an advisor to the incoming team, helping them navigate challenges, avoid past pitfalls, and keep the community's momentum strong. It was a rewarding chance to share insights while seeing fresh perspectives shape AIEC's next chapter.

Vice-President

Oct 2023 - Oct 2024

AI Entrepreneurship Club - Hybrid - Menofia University

After being the HR Committee Head in Season 1, I stepped up as VP in Season 2. I rebuilt the organizational structure and supervised 7 thriving communities along with 5 core committees. My days

blended strategic oversight with hands-on work - from conducting interviews and planning events to scripting programs and running marketing campaigns. What made it special? Working shoulder-to-shoulder with every community director and committee head to turn our ambitious seasonal goals into reality.

Key achievements:

- Scaled operations to support 7 communities (3 new creations) and 5 committees alongside AIEC's President
- Implemented a new organizational structure that improved cross-team collaboration
- Led 360° event execution from digital content creation to technical scripting

Head of Human Resources Committee

Feb 2023 - Sep 2024

AI Entrepreneurship Club - Hybrid - Menofia University

Led all HR operations while wearing multiple hats - from performance tracking and organizational design to creating report templates and boosting team morale. Frequently stepped beyond my core role to contribute graphic design, video editing, scripting, and content creation when needed.

Key achievements:

- Implemented new reporting systems
- Optimized team structures
- Supported cross-functional creative/technical projects

****The next few pages are a sample of projects I've made, not a part of my Resume.****

Projects

Library Management System | *Banque Misr Internship*

Cloud-native application with full DevOps practices: Docker containers, Kubernetes orchestration, and complete automation via Terraform and Jenkins CI/CD.

Key Achievements:

- Successfully containerized and deployed a production-ready application
- Implemented full IaC practices with Terraform
- Established automated CI/CD workflows
- Gained hands-on experience with industry-standard DevOps tools

Tech: Docker, Kubernetes, AWS EKS, Terraform, Jenkins

Link: github.com/Ahmedyehia12/LibraryManagementSystem

Sudoku Board Generator and Solver | *Academic Project*

Intelligent Sudoku solver using backtracking algorithms (DFS) with puzzle generation capabilities. Includes board validation and console visualization.

Key Details:

- Engineered helper functions for board validation, printing, and input handling
- Implemented puzzle generation with uniqueness checks
- Designed a clean console visualization

Tech Stack: Python, NumPy, Backtracking Algorithms (Depth First Search - DFS), Git

Link: github.com/MarwanMohammed2500/Sudoku-Solver

Neural Network Techniques Explorer | *Academic Project*

Interactive toolkit implementing 6 ANN methods (RBF, PCA, SOM, ART1, Fuzzy, Genetic) with Streamlit GUI for visualization and experimentation.

Highlights:

- Implemented 6 ANN architectures from scratch
- Developed an intuitive web interface using Streamlit
- Deployed models for interactive public demonstration
- Currently refining for open-source release

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

Link: github.com/MarwanMohammed2500/RBF-Calculator

Smart Door/Lock | *Academic Project*

A smart lock system with real-time face recognition, backup password access, and IoT connectivity using ESP32. The system sends intrusion alerts via Telegram and can integrate with broader home security networks. Ideal for residential or high-security environments as a first layer of defense against unauthorized access.

Highlights:

- Implemented a face recognition model using OpenCV
- Implemented the door lock using Arduino, later on updated to use an ESP32, hooked with an LCD Display and an external Num-Pad.

- Used Arduino IoT Cloud to implement a simple dashboard, enabling users to manually unlock the door
- Implemented a notification system via a Telegram bot to send authorized personnel a notification if someone tries to access the area and fails all tests.

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

Egyptian ID OCR model | Academic Project

A specialized OCR pipeline for extracting structured data from Egyptian national ID cards, combining fine-tuned pretrained models with custom-trained components. Ideal for governmental and private institutions seeking to automate data entry, improve accuracy, and ensure data integrity when processing ID-based information.

Highlights:

- Optimized a Pretrained model and trained a new model to extract information from Egyptian National ID Cards properly

Tech Stack: Python, Computer Vision, AI model training

Link: github.com/NASO7Y/OCR_Egyptian_ID

MLPy | Personal Learning Project

Open-source educational project implementing machine learning algorithms from scratch, comparing performance with established libraries like Scikit-Learn.

Highlights:

- Implemented different Famous machine learning algorithms from scratch and compared their performance to famous libraries like SciKit-Learn
- Will implement different deep learning algorithms (like the ones in the Neural Network Techniques Explorer and many more)
- Helped with my and some of my colleagues' and peers' learning process

Tech Stack: Python, SciKit-Learn, AI model training, Algorithms, Pandas, NumPy, Matplotlib, Git

Link: github.com/MarwanMohammed2500/MLPy

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

Explored feature engineering techniques to improve logistic regression performance by 6% (F1-score) and 4% (accuracy) through log-odds binning and one-hot encoding transformations, forcing a non-linear behavior into a Logistic Regression model.

Highlights:

- Engineered a piecewise (non-linear) transformation to simulate decision tree behavior within a logistic regression model
- 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

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](#)

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

Deployed a modified logistic regression model in a web app to predict user response to ads based on age and salary. Helps optimize ad spend by enabling more targeted and cost-efficient marketing campaigns.

Highlights:

- Built a modern, responsive frontend (Node.js on Replit) to accept user input and display predictions
- Integrated backend logic (Django) for preprocessing, model inference, and serving responses
- Containerized the full application using Docker for easy deployment and reproducibility

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

Link: github.com/MarwanMohammed2500/Ad-Campaign-Demographical-Prediction

Celebrity Face Recognition CV Model | *Personal Project*

A real-time video recognition system using InsightFace's antelopev2 and Deep SORT. While built with celebrities for demo purposes, the system demonstrates core technologies used in automated security systems, access control, and smart surveillance.

Highlights:

- Used a pretrained model for embedding generation
- Scraped images of famous personnel to use as a reference for the embeddings
- Mapped those embeddings to names
- Supports detection for unknown faces

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

Link: github.com/MarwanMohammed2500/Celebrity_Face_Recognition