

# Mohamed Mostafa Metawea

## AI Engineer

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**Portfolio:** [Mohamed Mostafa Metawea | AI Engineer](#)

**LinkedIn:** [Mohamed Mostafa Metawea | LinkedIn](#)

**GitHub:** [MOHAMEDMETAWEA \(Mohamed Mostafa\)](#)

## Profile

Junior AI and Communication & Electronics Engineering graduate with strong hands-on experience in Computer Vision, Deep Learning, and Generative AI, including object detection, segmentation, face recognition, and diffusion-based image generation. Proficient in Python, data preprocessing, feature engineering, model optimization, and evaluation, with experience deploying ML models as REST APIs using FastAPI, Docker, and cloud platforms.

## Education

### B.Sc. Communication & Electronics Engineering

October 6 University, Giza, Egypt | 2020 – 2025

GPA: 3.44 / 4.0

Graduation Project: AI-Based Face Recognition Attendance System with Anti-Spoofing (Grade: A)

## Technical Skills

- **Programming:** Python, C++
- **Machine Learning & Data Science:** Data preprocessing, EDA, feature engineering, model training & evaluation, hyperparameter tuning
- **Deep Learning:** CNN, RNN (LSTM, GRU), transfer learning, autoencoders, transformers
- **Natural Language Processing (NLP):** Text preprocessing, TF-IDF, word embeddings (Word2Vec, GloVe, FastText), text classification, sentiment analysis, topic modeling (LDA), spaCy, NLTK, Hugging Face
- **Computer Vision:** Image classification, object detection, segmentation, tracking, pose estimation, OCR, face recognition, video analysis
- **Generative AI:** Prompt engineering, LLMs, GANs, VAEs, Diffusion models, LoRA, PEFT, text & image generation, model evaluation
- **Frameworks & MLOps:** Scikit-learn, TensorFlow, Keras, Pandas, NumPy, FastAPI, Flask, Streamlit, Docker, MLflow, Azure ML, AWS
- **Databases & Visualization:** SQL, Power BI

## Soft Skills

Problem Solving, Analytical Thinking, Teamwork, Leadership

## Experience

### Machine Learning Intern – Cellula Technologies

Giza, Egypt | Feb 2025 – Mar 2025

- Developed and optimized ML models for industrial use cases, improving model performance and reliability
- Deployed trained models as RESTful APIs using **Flask**, enabling real-time inference
- Containerized ML services using **Docker**, ensuring reproducible and scalable deployment

## Projects

### AI-Based Face Recognition Attendance System | *Python, OpenCV, CNNs, Flask*

- Built a real-time face recognition system reducing manual attendance by 80%
- Implemented anti-spoofing and liveness detection achieving 98% spoof prevention
- Used **CNN-based feature extraction** and real-time video processing with OpenCV
- Achieved 95% accuracy with inference time under 1 second

### Heart Disease Risk Prediction System | *Python, Scikit-learn, LightGBM, XGBoost, Streamlit*

- Developed an end-to-end ML pipeline for clinical risk prediction
- Achieved 92% recall and 0.90 F1-score
- Deployed an interactive web application using Streamlit

### Comment Toxicity Detection System | *Python, NLP, Scikit-learn*

- Built an NLP-based text classification model using TF-IDF
- Improved content moderation accuracy and reduced false positives through feature engineering and threshold tuning

## Courses & Training

- Generative AI Professional — DEPI, Ministry of Communications and IT (Nov 2025 – Jun 2026)
- AI Training — National Telecommunication Institute (NTI) (Oct 2025 – Jan 2026)
- Machine Learning Specialization — DeepLearning.AI (Andrew Ng)
- IBM Data Science Program — DEPI, Ministry of Communications and IT (Oct 2024 – Jun 2025)
- Orange AI Level 1 (Nov 2024)

## Languages

- **Arabic:** Native
- **English:** Very Good