Mohamad Ramy

AI Engineer

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SUMMARY

AI Engineer who graduated from Misr University for Science and Technology (MUST) with a B.Sc. in Information Technology, majoring in Artificial Intelligence. My goal is to be number one at what I do. I build end-to-end systems, from collecting and cleaning the data to training the model and shipping it as a working app, and I only trust a result after testing it on data the model has never seen. Give me enough time and there isn't a problem that is unsolvable.

PROJECTS

EROSIGHT — Hybrid LightGBM–RUSLE Web Platform for Soil Erosion Prediction

Graduation project · Team Lead (9 members) · Supervised by MUST & NARSS · Google Earth Engine · LightGBM · FastAPI · Docker

- Led the 9-person team that built a geospatial AI platform processing 11 years of Landsat & Sentinel-2 data via Google Earth Engine, computing all 5 RUSLE erosion factors at 100 m resolution over 64,172 agricultural pixels (Burg Al-Arab, Egypt).
- Reached R^2 = 0.980 on the held-out 2024 test year by combining 2 LightGBM models (C_Factor & monthly rainfall) with physical RUSLE, using year-blocked cross-validation that kept the test years out of training.
- Delivered 3-year forecasts (2025–2027) as color-coded risk maps and georeferenced GeoTIFFs in a full-stack web app: FastAPI + Supabase/PostgreSQL backend, Vanilla JS frontend with Leaflet.js maps, Docker Compose with Nginx.

Data Scientist Agent — Local LLM, AutoML & Data Analysis

- A desktop app that works like a personal data scientist: load a company's data, ask questions in English or Arabic, and get answers, charts, forecasts and reports.
- Answered 85% of 40 new test questions correctly (English and Arabic, 3 public datasets) by having a local LLM write SQL that a guard checks before it runs on a read-only copy of the data.
- Leaked nothing in 30 of 30 test requests that tried to pull private customer data, by masking personal data in what the model sees and returns. Loads files bigger than memory: 200 million rows in 138 s using 2.6 GB of RAM.

Health & Fitness System — Local Vision Model & Personal Coaching

- A personal fitness coach app: it plans workouts and meals from 20 research-based rules, tracks progress every day, and predicts when you will reach your goal body.
- Estimates a meal's calories from one photo with the local vision model that won a comparison of models and prompts on 100 weighed dishes from the Nutrition5k dataset.

Dental Disease Classification — Computer Vision & Deep Learning

- Labelled 97.7% of findings correctly (cavities, fillings, impacted teeth and implants) on 473 findings from 73 X-rays it had never seen, against 94.9% for a simpler CNN, by fine-tuning EfficientNet-B0 in PyTorch with extra context around each finding.
- Shows where it looked with Grad-CAM heat maps, in a Gradio app.

OCR Application — Printed & Handwritten Text Recognition

- Read 192 damaged test pages (blur, shadows, phone photos) with a 1.2% character error rate, against 17% for Tesseract, by picking docTR on separate validation pages.
- Reads handwriting with TrOCR-large; finding the lines with docTR cut the page error rate from 90% to 34% on the GNHK test set.

Text Summarizer — NLP & Transformers

- Beat the 'first three sentences' baseline on 500 CNN/DailyMail test articles (ROUGE-Lsum 41.0 vs 36.1, scored against journalists' summaries) by comparing 5 methods and serving DistilBART in an app.
- Found and fixed a flaw in the first version, which scored summaries against the article itself and so rewarded copying.

Hand Gesture Controller — Computer Vision & PyAutoGUI

- A program that lets you control your computer with hand movements in front of a webcam: scroll, change the volume, move the mouse and click, all without touching the keyboard or mouse.

EDUCATION

Misr University for Science and Technology (MUST) | 2022–2026

- B.Sc. Information Technology, Artificial Intelligence major
- Graduated: July 2026 · Excellent with Honours
- CGPA: 3.87 / 4.0

EXPERIENCE

Master Machine Learning & AI Diploma — AMIT Learning

- June 2024 – January 2025 · Grade: 95%
- 220 hours covering Python, Data Science, Machine Learning, Deep Learning, Computer Vision, NLP, and MLOps

Big Data & Data Analysis Training — WE Telecom Egypt (175 hours)

- Training & Development Sector, 2025
- Excel · Power Query · Power BI · SQL Server · Python

SKILLS

Programming Languages: Python, Node.js, C++, JavaScript, HTML+CSS
Frameworks & Libraries: PyTorch, TensorFlow, Keras, NumPy, Pandas, scikit-learn, Seaborn, Matplotlib
Machine Learning: Regression, Classification, Clustering, Feature Engineering, Model Evaluation
Deep Learning: Neural Networks, CNNs, RNNs, ConvLSTM, Autoencoders, Transfer Learning
NLP: Bag of Words, LSTM, Transformers, Text Summarization
Generative AI & LLMs: Local LLMs, RAG, Prompt Engineering, Text-to-SQL, LLM Evaluation
Computer Vision: Image Processing, Object Detection, OCR
Geospatial & Data: ArcGIS, Google Earth Engine, GeoTIFF, RUSLE
APIs & Deployment: FastAPI, REST APIs, Docker, Flutter, Streamlit, Gradio
Data Analysis: Excel, Power BI, SQL Server
Soft Skills: Problem Solving, Team Leadership, Critical Thinking, Adaptability, Collaboration, Attention to Detail