

Saad Ahmed Abd El-Ghaffar

AI Engineering

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🌐 [LinkedIn](#) 🐙 [GitHub](#) 🏆 [Kaggle](#)

PROFESSIONAL SUMMARY

AI Engineer with strong experience in developing and deploying AI and image-processing solutions. Skilled in building real-time object detection, medical image segmentation, and visual analysis systems using Python, PyTorch, and OpenCV. Experienced in working across the full ML pipeline — from data preprocessing and model training to deployment using Flask or FastAPI. Passionate about applying deep learning to practical problems that improve accuracy and efficiency in real-world applications.

EXPERIENCE

Software Engineer

Nov 2025 – Present

TJM Labs

[LinkedIn](#)

- Building and integrating AI agents that automate pharmacy workflows such as prescription intake, fax processing, and demographic updates.
- Developing backend services and APIs that connect AI capabilities into existing pharmacy systems for reliable, production use.
- Collaborating with pharmacists and engineers to ship AI-powered automation that reduces manual work and improves operational throughput.

EDUCATION

Bachelor of Science in Computer Engineering

2020 – 2025

Mansoura University, Egypt

- Graduated with **Excellent with Honors**, overall score: **94.08%** (6th in class)
- Relevant Coursework: Machine Learning, Artificial Intelligence, Neural Networks

TRAINING / CERTIFICATIONS

WorldQuant University – Data Science Lab

Dec 2022 – Aug 2023

Certificate: [View Credential](#)

- Completed 8 diverse data science projects covering machine learning, time series analysis, and statistical modeling.
- Built predictive models using Linear Regression, ARMA, Logistic Regression, Random Forest, and GARCH.
- Developed interactive dashboards using Python, Plotly Dash, and custom APIs.

Information Technology Institute (ITI) – Computer Vision Training

Jul 2024 – Sep 2024

Certificate: [View Credential](#)

- Completed 5 advanced projects in computer vision, including tampering detection, image watermarking, text extraction, face swapping, and handwritten digit recognition.
- Used TensorFlow and PyTorch to train and evaluate deep learning models for visual recognition.
- Gained practical experience in data augmentation, feature extraction, and transfer learning.

Certificate: [View Credential](#)

- Gained hands-on experience with AI platforms, focusing on data processing, model training, and evaluation.
- Designed AI-based solutions using neural networks and optimization techniques.

PROJECTS

MathEditor (Graduation Project) [matheditor.me](#)

- Collaborated with a team to develop an interactive online platform for creating and collaborating on documents integrating mathematical equations, code, sketches, and AI-generated content.
- Contributed to the development of an OCR-based module that converts handwritten and printed mathematical expressions into editable LaTeX equations.
- Implemented a digital whiteboard feature allowing users to draw mathematical equations and automatically convert them into structured text within the document.
- Assisted in integrating a Large Language Model (LLM) to improve document quality via grammar correction, text refinement, and equation generation support.

Tennis Match Analysis System [GitHub](#)

- Built a computer vision system for automated tennis match analysis using YOLOv8, PyTorch, and OpenCV to detect players, track ball trajectories, and map court keypoints for spatial analytics.
- Generated real-time performance metrics and visualizations for player movement, shot speed, and trajectory analysis through an end-to-end detection and tracking pipeline.

Car Plate Recognition System [GitHub](#)

- Designed and implemented a real-time vehicle identification system using YOLOv11 for precise license plate detection and PaddleOCR for accurate text recognition.
- Developed a Flask-based web application with MySQL integration for automated data storage, search, and visualization of detected license plates.

Iranian Snack Detection System [GitHub](#)

- Built a computer vision system for automatic detection and segmentation of 19 Iranian snack products using YOLOv11, achieving over 99% mAP on validation data.
- Integrated real-time product metadata analysis to compute total price, calorie content, and expiry status from video streams for intelligent retail automation.

Anime Face GAN Generator [GitHub](#)

- Implemented DCGAN and CGAN architectures for high-quality anime face generation with TensorFlow and Keras, achieving conditional synthesis based on hair and eye color attributes.
- Developed a Streamlit-based web interface for real-time image generation, model visualization, and interactive experimentation with GAN outputs.

Cats vs Dogs Classifier [GitHub](#) — [Kaggle \(Gold Medal, 100+ Upvotes\)](#)

- Developed a deep learning model for cat and dog image classification using TensorFlow and fine-tuned VGG16, achieving 98.7% test accuracy.
- Built a full-stack deployment pipeline integrating FastAPI for inference, Streamlit for interactive visualization, and Docker for scalable production deployment.

Brain Tumor Classification [GitHub](#) — [Kaggle \(Gold Medal, 114+ Upvotes\)](#)

- Achieved state-of-the-art 99.7% accuracy on MRI-based brain tumor classification using a fine-tuned ResNet18 model implemented in PyTorch.
- Developed an end-to-end modular framework integrating FastAPI for model inference, Streamlit for visualization, and Docker for scalable deployment in real-world medical imaging workflows.

Time Series Ice Cream Sales Analysis [GitHub](#) — [Kaggle \(Gold Medal, 101+ Upvotes\)](#)

- Developed a comprehensive time series forecasting pipeline on 48 years of monthly ice cream sales data using ARIMA, SARIMA, XGBoost, LSTM, and GRU models, achieving superior predictive performance.
- Implemented rigorous statistical testing, feature engineering, and model evaluation to analyze seasonality, trend

components, and predictive accuracy across traditional and deep learning approaches.

Customer Segmentation (RFM and KMeans) [GitHub](#) — [Kaggle \(Silver Medal, 91+ Upvotes\)](#)

- Designed a complete customer analytics system integrating RFM analysis and KMeans clustering to segment e-commerce customers by purchasing behavior and loyalty patterns.
- Built an interactive Plotly Dash dashboard for dynamic visualization and business interpretation of customer clusters, supporting data-driven marketing strategies.

Hotel Reservation Cancellation Predictor [GitHub](#) — [Kaggle \(Silver Medal, 72+ Upvotes\)](#)

- Built an end-to-end machine learning system to predict hotel reservation cancellations using advanced ensemble and stacking models, achieving 97.2% accuracy and 99.4% AUC.
- Deployed a production-ready FastAPI and Streamlit application with Docker integration, enabling real-time predictions and actionable business insights for hotel operations.

Laptop Price Predictor [GitHub](#) — [Kaggle \(Silver Medal, 77+ Upvotes\)](#)

- Developed a machine learning system for laptop price prediction using ensemble regression (Random Forest, XGBoost, CatBoost), achieving 91.0% R^2 , 0.216 MAE, and 0.292 RMSE.
- Designed a complete data-to-deployment pipeline with Flask API and interactive web interface for real-time price estimation and user engagement.

TECHNICAL SKILLS

- **Programming Languages:** Python, C++, SQL, Object-Oriented Programming
- **AI Frameworks:** PyTorch, TensorFlow, Keras, Scikit-Learn, NumPy, Pandas
- **Computer Vision:** OpenCV, YOLOv8/v11, U-Net, OCR (PaddleOCR, Tesseract), Mediapipe, Segmentation Models, Object Tracking, Face Recognition
- **NLP & LLMs:** Large Language Models (LLMs), Prompt Engineering, Text Processing, Hugging Face Transformers (basics)
- **Machine Learning:** XGBoost, CatBoost, Random Forest, ARIMA/SARIMA, Feature Engineering, Statistical Modeling
- **MLOps & Deployment:** Flask, FastAPI, Streamlit, Docker, REST APIs, AWS
- **Data Visualization:** Matplotlib, Seaborn, Plotly, Dash
- **Databases:** MySQL, SQLite
- **Tools & Environments:** Git, Kaggle, Google Colab, VS Code

VOLUNTEERING

CAT Reloaded

Jul 2022 – Jun 2023

(For More Details: [LinkedIn](#))

- Organised workshops and events to promote technical skills and foster collaboration within the community.
- Facilitated hackathons, skill-building events, and hands-on training sessions to support technical development.

ICPC Mansoura

Jul 2021 – Jun 2022

(For More Details: [LinkedIn](#))

- Participated in competitive programming events, enhancing problem-solving and algorithmic skills.
- Supported team discussions, organised practice sessions, and contributed to programming efficiency improvement.

LANGUAGES

- **English:** Fluent
- **Arabic:** Native