

Mahmoud Gamal

Machine Learning Engineer

Maadi st 9, Cairo, Egypt

☎ (+20)1098255987 | ✉ mgama1.contact@gmail.com | 📷 mgama1 | 🌐 mgama1 | 🛂 Military status: Exempted

Education

Ain Shams University

MSc, Mechatronics & Robotics Engineering.

2025- present

Fayoum University

BSc, Mechatronics Engineering.

2018- 2023

- Grade: 3.0 (B)

Skills

knowledge	Machine & Deep Learning, Computer Vision, Image Processing, Control Systems
Programming	Python, Bash, MySQL, PyQt5, Streamlit, MATLAB/Simulink, Git, LaTeX
Machine Learning	TensorFlow, Scikit-learn, OpenCV, NumPy, Pandas, Librosa
Languages	Arabic (Native), English (Fluent)

Projects

EDvanced:

- Developed an end-to-end system to extract and analyze answers from scanned bubble sheets using OpenCV, OCR, and ArUco markers, enabling accurate identification of student responses and IDs
- Implemented a transparent and explainable cheating detection pipeline by combining statistical analysis with clustering algorithms (DBSCAN + PCA), flagging suspicious patterns using p-value assessments and visual cluster insights
- Built a Streamlit app allowing users to upload exam sheets, visualize scores, review results and suspected cheaters

OGallery:

- Developed an open-source Linux gallery app using PyQt5 with advanced image search and editing capabilities
- Trained a MobileNet classifier for image categorization and applied Levenshtein distance for typo-tolerant search
- Improved performance by implementing a custom caching mechanism for efficient image loading

ADAS perception module(Graduation project):

- Implemented an image processing pipeline for lane detection using OpenCV.
- Collected road data, for instance segmentation, developed code to convert it to the appropriate label format, and fine-tuned YOLOv5 on the custom dataset. Additionally, performed object detection by collecting cars and traffic signs data, fine-tuning YOLOv5 on the custom dataset, and successfully deployed it on Raspberry Pi

voice commands:

- Developed and trained a convolutional neural network (CNN) using TensorFlow and Keras for audio command recognition, including feature extraction with MFCCs and delta features
- Integrated MLflow for experiment tracking, optimized the model inference using int8 quantization

Work experience

HTI

Teaching assistant

Aug 2025 - Present

- teaching classical and modern control systems engineering

Samsung Electronics Egypt

Internship

Aug 2023 - Oct 2023

- Optimization and maintenance of assembly line AGVs

Publications & Extracurriculars

- Published technical articles covering topics such as, **color palette extraction with k-means clustering**, **steganography techniques using python**
- Created synthetic **dataset** of Egyptian ID cards with randomized personal details and StyleGAN2-generated headshots
- **IEEE FSB Robotics team head** (2020-2021): Founded team, developed curriculum, tutored robotics fundamentals
- **Fab Lab Fayoum Volunteer** (2019-2021): Provided technical support for visitors