

Professional Summary

Final-year Computer Engineering undergraduate with an immense passion for AI. I enjoy the idea of connecting the theoretical foundation to real-world applications and have many "aha" moments as I learn about new technologies and innovative solutions.

Education

Arab Academy for Science and Technology - Faculty of Engineering SEP. 2020 – JUN
Bachelor in Computer Engineering – GPA: 3.6/4.0 (Student Transcript Link)
• Related Coursework: Introduction To Artificial Intelligence, Neural Networks, Image Processing and Pattern Recognition

Projects

These are some of the projects not all of them. You can find the rest on my Github: MHamdyK

- AI Model Development for En2ly (Startup Application)
Integrated a multi-head AI model into the backend of a startup application to classify and estimate the dimensions of house furniture.
 - Trained on the Bonn Furniture Styles Dataset (90k images) and optimized locally.
 - Converted the model to ONNX and TFLite for efficient real-time integration, streamlining furniture categorization and dimension estimation.
- Fawry Competition (On-going) | 2 Month Duration | Phase 1 | Qualified
 - Face Identification Project:
Developed a deep learning-based face re-identification system to identify staff members
 - Fine-tuned an InceptionResNetV1 (pretrained on VGGFace2) with a custom ArcMarginProduct layer, achieving 90% validation accuracy.
 - Engineered custom PyTorch datasets with extensive data augmentation and applied cosine similarity on gallery embeddings for accurate staff identity matching.
 - Multi-Object Tracking Project:
Developed a complete pedestrian tracking system
 - Constructed a MOT pipeline using the MOT20 dataset with YOLOv8 for pedestrian detection and ByteTrack for real-time tracking, achieving a 65% HOTA score under challenging conditions.
 - Customized model training with meticulous hyperparameter tuning (SGD with cosine learning rate decay) and robust safe bounding box conversion with annotation validation across datasets.
- English-Arabic Neural Machine Translation using Seq2Seq LSTM RNN (Github)
 - Built two LSTM-based seq2seq models (with/without soft-attention) in TensorFlow/Keras for Eng.–Arabic translation.
 - Developed data preprocessing pipelines for tokenization, one-hot encoding, and managing start/end tokens.

Courses & Certificates

DEPI (Digital Egypt Pioneers Initiative) - Google Data Analyst Specialist	OCT. 2024 - Present
Embedded Systems Engineer – AMIT Embedded Systems Course (Scholarship by Orange) Certificate Link	SEP. 2024
Machine Learning Specialization (Coursera)	MAY. 2024
Zero to Mastery: Learn PyTorch for Deep Learning, Udemy	JAN. 2024
Internet of Things IoT– Information Technology Institute(ITI) IOT Certificate Link	SEP. 2022

Technologies

Languages: Python, C++, C, C#, Java, Assembly x86,VHDL, Verilog, SQL.
Skills: PyTorch, TensorFlow, LangChain, Git, Github, Linux, Tableau, Power BI, Vector Database, Data structure, Algorithms, Microcontrollers.