ASSEM ELQERSH

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SUMMARY

AI Engineer and Associate Data Scientist with practical experience in computer vision, natural language processing, and generative AI. Proficient in developing, validating and deploying deep learning models using PyTorch and TensorFlow; experienced in data preprocessing, feature engineering, and model optimization. Demonstrated ability to deliver end-to-end solutions through internships and applied projects across medical imaging, real-time vision, and Arabic NLP. Active IEEE leader with proven event and program coordination experience.

EDUCATION

B.Sc., Computer Software Engineering, Egypt-Japan University (E-JUST) *2022 – 2026*
Relevant coursework: Deep Learning, Computer Vision, Robotics, Cryptography, Parallel Computing & Distributed Systems, Data Structures and Algorithms, Numerical Analysis, Computer Architecture, Computer Organization, Operating Systems.

PUBLICATIONS

A Systematic Framework for Evaluating the Diagnostic Impact of Super-Resolution Models in Medical Imaging (View) *IEEE Xplore, 2026*

- Evaluated **10+ super-resolution models** (CNN, GAN, Transformer) across **multiple pediatric chest X-ray datasets**, measuring downstream diagnostic impact under domain shift.
- Frequency-aware Transformer models (FreqFormer) achieved up to **AUC = 0.87**, recovering $\sim$ 50% of the diagnostic performance gap compared to oracle-resolution inputs.

EXPERIENCE

Information Technology Institute (ITI) *July 2025 – October 2025*
Generative AI & Python / Web Development Intern (Remote)

- Implemented and evaluated generative AI prototypes and model pipelines for applied projects.
- Developed Python-based data processing and backend components to support ML services.
- Integrated ML models into web interfaces and dashboards for model interaction and visualization.

NeuronetiX *August 2024 – October 2024*
Machine Learning Intern (Remote)

- Performed data cleaning, preprocessing, and feature engineering for industry projects.
- Built and validated ML models; participated in collaborative problem-solving and code reviews.

Mindset Training *August 2024 – September 2024*
Machine Learning Intern (Remote)

- Implemented foundational ML/DL models (CNNs, RNNs); conducted statistical analysis and data visualization.
- Applied Python (Pandas, NumPy) for data manipulation and experiment reproducibility.

Creativa Hub Alexandria *August 2024*
Data Science Intern (Onsite)

- Built preprocessing pipelines and feature engineering workflows for time-series and tabular datasets.
- Developed baseline data science models to support project objectives.

PROJECTS

MedFlow: AI Medical Assistance System (View)

- Developed an integrated platform for symptom assessment and X-ray image analysis; implemented clinical decision support components.
- Implemented image enhancement (VDSR, SRGAN) and detection models to improve diagnostic image quality and downstream performance.

NewsLies: Arabic Fake News Detection (View)

- Built an Arabic fake news classifier using LSTM and AraBERT architectures; trained and evaluated on the Arabic Fake News Dataset (AFND).
- Designed preprocessing and tokenization pipelines for Arabic text; measured performance across multi-class labels.

Real-time Face Detection System (View)

- Implemented dual-architecture face detection with HOG-based and deep learning approaches; added 68-point landmark estimation and DeepFace integration.
- Designed a lightweight SQLite-backed system for identity records and performed algorithm performance comparisons for real-time deployment.

Sign-to-Text Translation System (View)

- Built a web application that converts Arabic sign language gestures to text in real time using MediaPipe and a custom classification model.

Object Detection Applications (View)

- Developed browser-based object detection apps (CDN and Node.js implementations) using COCO-SSD and BlazeFace for real-time inference in client environments.

Face Mask Detection (View)

- Trained a MobileNetV2-based classifier in PyTorch achieving 99.2% test accuracy on a 10K+ face dataset; optimized for sub-100ms inference on mobile targets.

Ishihara K-means Library (View)

- Created a Python package and CLI for color-blindness (Ishihara) test analysis using K-means clustering and image processing utilities.

TECHNICAL SKILLS

Programming Python, C++, JavaScript, SQL, CUDA (basic)

Frameworks / Tools PyTorch, TensorFlow, Keras, scikit-learn, Hugging Face Transformers; OpenCV, MediaPipe; AraBERT; Docker, TensorFlow.js, SQLite; model optimization & inference tuning

VOLUNTEERING & LEADERSHIP

Treasurer, IEEE EJUST CS SBC *Oct 2024 – Oct 2025*

- Managed budgets and sponsorships for 10+ workshops and seminars; coordinated logistics for JAC ECC 2024, RoboRave 2025 and FireFighting Boat 2025.
- Represented EJUST at IEEE Region 8 CS SYP Conference 2024.

TechX Ambassador, IEEE CS SYP *Jan 2025 – Jan 2026*

MENA SYP Ambassador, IEEE Region 8 *Jun 2025 – Sep 2025*