ASSEM ELQERSH

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SUMMARY

AI Engineer and Associate Data Scientist with hands-on experience building end-to-end AI systems across healthcare, NLP, computer vision, and developer tooling. Skilled in PyTorch, TensorFlow, FastAPI, and model deployment, with proven delivery of production-style solutions including AI-powered clinical workflows, real-time vision applications, and LLM-ready repository intelligence platforms. Active IEEE leader with strong collaboration and execution in cross-functional technical projects.

EDUCATION

B.Sc., Computer Software Engineering, Egypt-Japan University (E-JUST) *Oct 2021 – Feb 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-V2: AI-Powered Hospital Management System (View)

- Built an end-to-end healthcare platform with role-based workflows and AI-assisted chest X-ray analysis.
- Integrated multimodal medical AI components into production-style clinical pipelines for triage and reporting.

RepoDigest: GitHub Repository Intelligence for LLMs (View)

- Engineered a FastAPI + Web UI system that ingests repositories into structured JSON and LLM-ready digests.
- Added user-repo browsing, progress tracking, and streaming LLM analysis workflows across multiple providers.

AIOps Brain: Local-First AI Operations Assistant (View)

- Built an AI assistant for developer workflows, combining automation utilities with assistant-driven tooling.
- Designed a practical local-first setup for operational tasks, improving reliability and day-to-day productivity.

NewsLies: Arabic Fake News Detection (View)

- Built Arabic misinformation classification pipelines with LSTM and AraBERT models on AFND.
- Designed robust preprocessing and tokenization workflows for multi-class Arabic NLP evaluation.

Sign-to-Text Translation (Arabic Sign Language) (View)

- Developed a real-time gesture-to-text web app using MediaPipe and custom classification models.
- Implemented low-latency inference flow for accessible human-computer interaction scenarios.

Object Detection App (TensorFlow.js + React) (View)

- Developed a browser-based real-time object detection interface with TensorFlow.js models and live camera input.
- Built a responsive React front end for low-latency inference visualization directly on client devices.

Real-time Face Detection System (View)

- Implemented dual face detection pipelines using classical OpenCV methods and deep learning approaches.
- Added landmark estimation and recognition workflow components for robust real-time vision applications.

General-SISR-Framework (View)

- Built a super-resolution evaluation framework spanning CNN, GAN, and Transformer-based approaches.
- Standardized benchmarking for reconstruction quality and downstream diagnostic utility in medical imaging.

Inventory-Optimization-Models (View)

- Implemented operations-research models for lot sizing, safety stock, and demand-aware replenishment decisions.
- Packaged optimization workflows to support reproducible analytics and decision support in supply settings.

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*