Youssef Hesham Abuzeid

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Education

2020 – 2025 **Electronics And Communication,** *Faculty of Engineering, Cairo University*

Grade : Very Good

Experience

2025/07 – 2025/08 **R&D AI/ML Intern @ Siemens**

- Researched GenAI applications in EDA, focusing on HDL design automation.
- Built a System Using OpenAI Agents SDK to generate missing HDL modules/packages.
- Designed the system as a potential GenAI extension for **Questa Developer**.

2024/10 – 2025/06 **Graduation Project @ Si-Vision,** *Adversarial Attack on Deep Learning Models*

This project examines vulnerabilities in deep learning models to adversarial attacks, with tasks including:

- Reviewing prominent adversarial attack techniques.
- Training and evaluating targeted deep learning models.
- Implementing attacks and assessing their impact on performance.
- Exploring defense mechanisms through literature review.
- Preparing a research paper for publication.

2023/08 – 2023/09 **ML Engineer Intern @ SUMERGE**

Collaborated with six team members to implement a Music Recommendation System, utilizing machine learning techniques and the pandas library. The system incorporated both content-based and collaborative filtering approaches for enhanced music recommendations.

Courses

GAN Specialization, *Deeplearning.ai*

Deep Learning Specialization, *Deeplearning.ai*

Machine Learning Specialization, *Deeplearning.ai*

Embedded Automotive and AUTOSAR Device Drivers Course,
Edges for Training Academy and Under the Supervision of Engineer Mohamed Tarek

ARM Architecture Based on TM4C Micro-controllers Course,
Edges for Training Academy and Under the Supervision of Engineer Mohamed Tarek

Standard Embedded Systems Diploma,
Edges for Training Academy and Under the Supervision of Engineer Mohamed Tarek

Skills

Programming Skills: C, Modern C++, Python, Java, Pandas, Numpy, Matlab, Bash

Embedded Systems: AVR, ARM, RTOS (FreeRTOS), AUTOSAR, UART, SPI, I2C, LIN, CAN

Software Design: OOP

Linux Adminstration

Machine Learning: supervised and unsupervised learning techniques, including regression, classification, clustering.

Deep Learning: Neural networks, CNNs, RNNs, LSTM, Attention Models.

Python Deep learning frameworks: TensorFlow, Pytorch

AI Agents frameworks: Crew ai, OpenAi Agents SDK, Google ADK, Langchain, Langgraph

Projects

InterviewerAi

AI Job Interview Simulator (Crew AI & OpenAI APIs)

- Built a platform simulating tech interviews using Crew AI and OpenAI APIs
- Designed dual interfaces for candidates (mock interviews) and companies (AI-led screening)
- Created dynamic, role-specific questions with real-time feedback
- Improved candidate prep and automated early-stage hiring

Nueral Networks EECE Project

- **Classical ML for Regression & Classification** Predicted heating oil use and classified digits using regression, PCA, and SVM pipelines to reduce labeling. **Tools:** Regression, PCA, SVM, Pipelines **Result:** Accurate predictions, less manual labeling
- **Neural Nets for Image & Speech** Built MLPs and CNNs for digit and speech recognition with tuning and augmentation. **Tools:** MLPs, CNNs, Augmentation **Result:** Outperformed classical baselines
- **Advanced NN Techniques** Applied autoencoders, GANs, and attention to boost performance with less real data. **Tools:** Autoencoders, GANs, Attention **Result:** High accuracy, reduced data needs
- **Arabic NLP with LLMs** Created a retrieval-based Q/A system in Arabic using TF-IDF and RAG; benchmarked LLMs. **Tools:** TF-IDF, RAG, LLMs **Result:** Improved Arabic Q/A and retrieval performance

Football Analysis

- **Description**: A computer vision and machine learning project that analyzes football videos to track players, detect objects (e.g., ball, referees), and calculate performance metrics like player speed and team statistics using advanced algorithms.
- **Technologies Used**:
- Python
- YOLO (You Only Look Once) for object detection
- OpenCV for image processing and optical flow
- K-means clustering for pixel segmentation
- Jupyter Notebooks for development and visualization

PC Control

Developed a system to control the pc using just your phone using C++ and Socket Programming

ChessGame

Developed a chessgame using C++ and QT

AUTOSAR Port Driver

This project provides a comprehensive implementation of an AUTOSAR-compliant Port Driver. The driver manages the configuration and control of General-Purpose Input/Output (GPIO) pins, adhering to the AUTOSAR standard to ensure modularity, scalability, and reusability.