

Mostafa Hassan Mohamed

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EDUCATION

2021 – Present

Dual Degree Engineering Student at Ain Shams University (iCHEP) & University of East London, under Computer Engineering and Software Systems Program, **Cumulative GPA: 3.08**.

2018 – 2021

Graduated from Elshahed Ibrahim Mostafa Ibrahim Military School for Boys with a score of 94.15%, ranked 1st in the school, 3rd in the administration, 130th in Cairo, and 558th in Egypt. This outstanding performance earned me a full scholarship to study at the Faculty of Engineering at Ain Shams University in the international department. Additionally, ranked first in Cairo in the preparatory stage with a perfect score of 100%.

MILITARY SERVICE

Partially Exempted – Pending Final Confirmation

Expected permanent exemption under Egyptian conscription regulations as the only son.

EXPERIENCE

Talent Cultivation Summer Training Camp

August 3, 2025 – Present

Huawei Cloud & Ain Shams University

Cairo, Egypt

- Currently enrolled in a 5-week intensive training camp aligned with Egypt's Vision 2030 and Ain Shams University's mission to equip students with essential digital skills
- Curriculum includes ICT fundamentals, Artificial Intelligence, Big Data, and Cloud Native technologies, delivered through expert-led sessions and practical labs
- Collaborating on a cloud-hosted team project to apply and demonstrate acquired skills
- Upon successful completion, participants receive joint certificates from Huawei Cloud and Ain Shams University, and become eligible for the Huawei Certified Cloud Developer Associate (HCCDA) exam

Linux Administration Trainee

July 2025 – August 2025

Edges For Training Academy

Cairo, Egypt

- Completed a 4-week intensive Linux Administration training program
- Training covered system internals, file management, Bash scripting, and user permissions
- Engaged in hands-on labs and projects simulating real-world Linux administration tasks
- Received direct mentorship in an offline classroom environment
- Earned a certificate recognized by industry professionals upon successful completion

Cyber Ops Associate Trainee

July 2024 – Sep. 2024

National Telecommunication Institute (NTI)

Cairo, Egypt

- Enrolled in a 90-hour intensive training focused on cybersecurity operations and practices
- Covered core concepts in network security, incident response, intrusion detection, and cyber threat analysis
- Training offered by Ministry of Communications and Information Technology, Egypt

Software Testing Trainee (ISTQB Track)

July 2023 – Aug. 2023

NEXT Career Development Academy

Cairo, Egypt

- Completed a professional-level training program in Software Testing based on ISTQB standards
- Gained hands-on experience in writing test cases, test planning, and executing manual test strategies
- Studied software development lifecycle (SDLC), black-box testing, and defect management workflows

PROJECTS

Breast Cancer Type Prediction Model

Summer 2025

Developed a machine learning pipeline to predict breast cancer types (benign/malignant) using the Wisconsin Breast Cancer dataset. Implemented data preprocessing, including cleaning and normalization, and trained classifiers (Decision Tree, KNN, Naive Bayes, Logistic Regression, SVM, Random Forest) with hyperparameter tuning. Optimized SVM and Random Forest for high recall on malignant cases and deployed the model locally using a Flask web application. Utilized Python, Flask, joblib, numpy, os, scikit-learn, Pandas, NumPy, Matplotlib, and Seaborn for development and visualization.

Sports Image Classification Model

Spring 2025

Developed a convolutional neural network (CNN) model to classify sports images from Kaggle datasets, deployed locally using Flask. Performed data preprocessing, including cleaning, normalization, and label encoding, and visualized data patterns. Optimized model performance through hyperparameter tuning and monitored training using TensorBoard.

Footwear E-Commerce Platform

Spring 2025

Built a responsive full-stack e-commerce website featuring user authentication, product management, shopping cart functionality, and secure checkout. Integrated JWT-based login, developed CRUD APIs, and enabled real-time inventory tracking, profile editing, search filters, customer reviews, and promotional discounts.

Automotive Window Control System

Spring 2025

Engineered a real-time embedded system on the Tiva C TM4C123GH6PM microcontroller to simulate a car power window with manual and automatic modes. Incorporated obstacle detection, position tracking via encoder, and window lock functionality, utilizing FreeRTOS for efficient task scheduling and inter-task communication.

Advanced Spell Correction System

Spring 2025

Designed and developed a spell checker application leveraging finite state machines and regular expressions to accurately identify and correct misspelled words. Created an intuitive GUI to enhance user interaction and applied automata theory to validate input strings effectively.

Genetic Variant Classification

Spring 2025

Developed a machine learning framework to identify conflicting genetic variant classifications in ClinVar using Random Forest. Engineered features like allele frequency and CADD scores, addressing class imbalance with SMOTE. Optimized hyperparameters via Optuna, achieving 70% F1-score. Aligned with ACMG/AMP guidelines to enhance clinical interpretation.

Network Domain Resolution Service

Fall 2024

Created a DNS server from scratch using Python and UDP sockets to handle A and CNAME queries. Designed a custom zone file parser, implemented response caching with TTL support, and developed a logging system to track query resolutions, deepening understanding of DNS protocols and network programming.

Smart Home Automation System

Fall 2024

Designed an embedded system on the Tiva C TM4C123GH6PM microcontroller to monitor and control home appliances, including room temperature and door status with alarm features. Built a desktop interface for real-time data visualization and appliance management via UART communication.

Barcode Processing Pipeline

Fall 2024

Developed a robust system to detect, extract, and decode Code11 barcodes from noisy images. Applied advanced image preprocessing, frequency analysis, and pattern recognition techniques to ensure accurate barcode digit interpretation under challenging conditions.

Heart Failure Prediction Tool

Fall 2024

Constructed machine learning models to predict heart disease risk using patient data. Utilized PCA for data visualization, trained classifiers (SVM, Naïve Bayes, KNN, Decision Tree), and evaluated performance with F1-score and confusion matrices. Analyzed patient clusters using dendrograms.

- Network Security Analysis Lab

Summer 2024

Analyzed network traffic with Wireshark to identify anomalies and threats. Configured Security Onion for real-time intrusion detection and used Sguil for alert analysis. Conducted SIEM log correlation, forensic investigations, and simulated cyberattacks to test incident response strategies. Deployed Cisco Web Security Appliances for URL filtering and malware protection, and visualized threat intelligence with Kibana.
- Library Database Solution

Spring 2024

Architected an SQL-based library management system to automate book cataloging, borrowing/returning, user/staff management, and fine calculations. Designed ER diagrams and relational schemas with constraints, and optimized stored procedures for efficient transactions and scalable multi-library support.
- C Compiler (Lexer and Parser)

Spring 2024

Developed a lexer and parser for a C compiler using Java to tokenize and parse C source code. Designed lexical analysis to handle keywords, operators, and identifiers with regular expressions. Constructed a context-free grammar for syntax analysis, ensuring accurate abstract syntax tree generation. Tested against standard C programs to validate parsing correctness.
- Emotional Recognition AI App

Spring 2024

Developed a convolutional neural network (CNN) model to recognize emotions from facial images using Python. Preprocessed image datasets with normalization and augmentation for robust training. Deployed the model locally for real-time emotion detection. Evaluated performance using accuracy and F1-score metrics.
- Quality Assurance Testing Suite

Summer 2023

Formulated and executed test plans for applications like Vezeeta and Chic Homz, adhering to ISTQB standards. Tracked defects using Jira and delivered a comprehensive testing report with a requirement coverage matrix to ensure thorough validation.
- [View All Projects on GitHub](#)

TECHNICAL SKILLS

- Programming Languages:

Java, C/C++, Python, Bash, SQL, JavaScript, HTML/CSS
- Frameworks & Platforms:

Django, Node.js, Hadoop, FreeRTOS, Apache Spark
- Developer Tools:

Git, GitHub, Docker, Kubernetes, VS Code, Visual Studio, Eclipse, Linux, Jira
- Libraries:

Scikit-learn, TensorFlow, Keras, Pandas, NumPy, Seaborn, Matplotlib
- Machine Learning & Deep Learning:

Classification (SVM, Decision Trees, Naïve Bayes, KNN), Clustering (K-Means, Hierarchical, DBSCAN), Regression (Linear/Logistic), CNNs, RNNs, ANNs, Feature Engineering, Model Tuning; introductory knowledge of Transformers & LLMs
- Computer Vision:

OpenCV, Image Processing, Feature Extraction, Object Detection, CNN-based Vision Models
- Testing:

Manual Testing, Selenium, ISTQB Practices
- Embedded Systems:

Embedded C, Tiva C TM4C123GH6PM, UART Communication, Verilog, VHDL
- Core Competencies:

OOP, Data Structures & Algorithms, Excel (Data Analysis), Power BI

LANGUAGES

- Arabic:

Native
- English:

Fluent
- German:

A2