Haitham Ismail Abdelrahman Ismail

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Objective

I believe that technology becomes meaningful only when it solves real problems and improves people's lives. This mindset drives me to build AI solutions that are not just technically impressive but also socially impactful.

Ai Engineer

AI Engineer | 2025 Artificial Intelligence Graduate | Skilled in Machine Learning, Deep Learning, Computer Vision, Python ,C++, NLP, NumPy, Pandas,Data Anslysis, Java, Photoshop,Video Editor and Microsoft (Word,Excel,PowerPoint) . Eager to contribute enthusiasm, adaptability, and a fresh perspective to a dynamic team.

Education

Egyptian Russian University
Bachelor of Science in Artificial Intelligence, Concentration in AI
Graduation Date : July 2025
Graduation Project :
Artificial Smart Recognition – Assistive Navigation for the Visually Impaired.

Projects

Hotel Room Management System
C++ | Data Structures (Linked Lists) | File Handling

- Developed a console-based hotel room management system in C++ to manage room check-in, check-out, and guest data storage.
- Implemented a **linked list data structure** to dynamically manage rooms with efficient search and insertion functionalities.
- Integrated **file handling** to persist guest data between program executions, ensuring data integrity and availability.
- Built features including room insertion, occupancy status display, room search, and guest data saving/loading.
- Enhanced user experience with robust input validation and error handling mechanisms.

RFID-Based Access Control System
C++ | Arduino | RFID Technology | Embedded Systems

- Designed and implemented an **RFID-based security system** allowing only authorized cards to grant access.
- Programmed the system using **Arduino C++** to read RFID tags, compare IDs against a predefined database, and trigger access mechanisms.
- Configured **RFID reader module (RC522)** with Arduino to detect and authenticate unique card IDs efficiently.
- Integrated a **buzzer module** to provide immediate audio feedback, indicating access granted or denied.
- Enhanced security by restricting entry to registered RFID cards and denying access to unrecognized tags.
- Developed a scalable codebase enabling easy addition of new authorized cards when needed.

Currency Converter Management System
Java | NetBeans | Object-Oriented Programming

- Developed a **currency converter application** in Java using NetBeans, implementing OOP principles for scalability and maintainability.
- Designed a system architecture that includes **Manager** class for overseeing transactions and user management.
- Created **Customer class with two types**: regular customers and immigrants, each with specific attributes and conversion privileges.
- Implemented GUI components to enable user interaction for currency selection, amount entry, and conversion result display.
- Applied **inheritance and polymorphism** to handle multiple customer types efficiently within the system.

Website Testing Project – Demoblaze E-commerce Website
Software Testing | Test Case Design | Bug Reporting | Excel

- Conducted comprehensive **functional and usability testing** on Demoblaze E-commerce Website as part of Software Testing coursework.
- Developed detailed **Test Case Templates** covering multiple modules including login, signup, product selection, cart, and checkout functionalities.
- Executed test cases systematically to identify defects, documenting results and observations in an organized **Excel report** for easy analysis.
- Created **Bug Reports** with clear reproduction steps, severity, priority, and screenshots to communicate issues effectively to developers.
- Evaluated website responsiveness, input validation, and user flow to ensure alignment with specified requirements.

Graph Coloring and Pathfinding Visualization Tool
Python | NetworkX | Matplotlib | Streamlit | Algorithms

- Developed an interactive **graph coloring and pathfinding application** using Python, NetworkX, and Matplotlib.
- Designed and implemented a **backtracking-based map coloring algorithm** to assign colors to regions without conflicts, visualizing results with Matplotlib plots.
- Implemented a **backtracking algorithm for shortest path finding**, displaying all possible paths and highlighting optimal solutions.
- Built a user-friendly **GUI with Streamlit** to run and visualize graph coloring and pathfinding processes dynamically.
- Enhanced understanding of **graph theory concepts** such as coloring, adjacency, and traversal for real-world allocation problems.

Heart Disease Binary Classification Project
Python | Machine Learning | Scikit-learn | XGBoost | Data Preprocessing

- Developed a **heart disease classification model** to predict patient risk using a structured health dataset.
- Performed comprehensive **data preprocessing**, including encoding categorical features, train-test splitting, and feature scaling with StandardScaler.
- Implemented and evaluated multiple **supervised learning algorithms**: Logistic Regression, Decision Tree, Random Forest, SVM, k-NN, Naive Bayes, XGBoost, and Gradient Boosting.
- Designed a **Voting Classifier ensemble model** combining Logistic Regression, Random Forest, and Gradient Boosting to improve prediction performance.
- Achieved high accuracy results, with **Random Forest, Decision Tree, and XGBoost models reaching 100% accuracy**, and the Voting Classifier achieving **99% accuracy** with strong ROC-AUC scores.
- Generated detailed **classification reports**, precision-recall metrics, and ROC-AUC evaluations to assess model performance and generalization.

Fake News Detection and Propagation Graph Visualization
Python | NLP | Machine Learning | NetworkX | Matplotlib | Scikit-learn

- Developed a **fake news classification model** using Random Forest to detect real vs. fake news headlines with an overall accuracy of **84%**.
- Preprocessed datasets by merging real and fake news data, labeling classes, and applying **TF-IDF vectorization** to convert textual data into numerical features.
- Split data into training and testing sets to evaluate model generalization and avoid overfitting.
- Visualized **news propagation as a graph structure** using NetworkX and Matplotlib, representing each news title as a node colored by class (fake or real).
- Designed a pipeline for **model training, prediction, and evaluation** including classification reports detailing precision, recall, and f1-score for each class.
- Enhanced understanding of **graph-based modeling approaches** for misinformation spread analysis and detection.

Digital Clock Design Project
Logic Design | Digital Systems | Circuit Design

- Designed and implemented a **digital clock circuit** as part of Logic Design coursework.
- Utilized **logic gates, counters, and display drivers** to build a fully functional digital clock displaying hours and minutes.
- Applied knowledge of **sequential circuits, flip-flops, and timing diagrams** to ensure accurate time counting and display.
- Developed circuit schematics and simulations to verify functionality before hardware implementation.
- Strengthened understanding of **digital electronics concepts** and practical circuit design skills.

Real-Time Face Recognition with Speech Output
Python | OpenCV | Face Recognition | Text-to-Speech

- Developed a **real-time face recognition system** using Python and OpenCV to identify known individuals from a pre-stored image dataset.
- Created and organized a **folder-based image database** containing labeled images for each person to enable efficient recognition.
- Integrated **Text-to-Speech (TTS) functionality** to announce the recognized person's name upon detection, enhancing accessibility and user feedback.
- Implemented the pipeline to capture video frames, detect faces, compare encodings, and provide immediate recognition results with audio output.
- Strengthened practical skills in **computer vision, face encoding techniques, and multimedia integration** for real-world AI applications.

AI-Based Face Recognition Attendance System with Real-Time Feedback
Python | OpenCV | Face Recognition | Text-to-Speech | Excel Integration

- Developed an **automated attendance system** using face recognition to identify individuals from a pre-stored image dataset.
- Created an organized **image database folder structure** containing labeled images for each person to enable accurate recognition.
- Integrated **Text-to-Speech (TTS)** functionality to announce the recognized person's name upon detection, enhancing user interaction.
- Designed a time-based attendance logic to mark:
  – **On-time arrivals:** draws a **green bounding box** on the face and records attendance as “Present”.
  – **Late arrivals:** draws a **red bounding box** and marks as “Absent”.
  – **Unknown individuals:** draws a **yellow bounding box** and flags as “Unknown”.

- Connected the system to **Excel sheets** for automatic recording of attendance status, names, and timestamps for daily tracking.
- Enhanced practical skills in **computer vision, automated data logging, and AI-based smart attendance solutions** for real-world deployment.

Driver Drowsiness Detection System
Technologies: Python | dlib | Computer Vision | OpenCV | Embedded Systems

- Developed a computer vision-based system to **detect driver drowsiness by analyzing eye aspect ratio and facial landmarks** using dlib.
- Implemented an **alarm system** that triggers a buzzer alert when the driver is detected to be sleeping or drowsy to enhance road safety.
- Designed the pipeline to be **scalable for future integration with vehicle control modules**, enabling automatic intervention for accident prevention.
- Tested the model on real-time video streams to validate accuracy and system responsiveness under different lighting conditions.

Mobile Application – Tic Tac Toe Game
Technologies: Flutter | Dart | Mobile Development | UI/UX

- Developed a **Tic Tac Toe (X and O) mobile game application** using Flutter and Dart, implementing interactive UI components with responsive design for different screen sizes.
- Designed an intuitive and engaging user interface to enhance user experience and gameplay.
- Implemented game logic for player turns, win condition checks, and game reset functionality.
- Tested the application on Android devices to ensure smooth performance and bug-free user interaction.

Graduation Project
Artificial Smart Recognition – AI-Based Assistive Navigation for the Visually Impaired
Python | YOLO v5 | Computer Vision | Deep Learning | OpenCV | Embedded Systems

- Developed a smart wearable device that empowers visually impaired individuals with AI-based navigation support. The system integrates computer vision and AI technologies (YOLOv5, Raspberry Pi, sensors, camera, and text-to-speech) to detect obstacles and provide real-time voice-guided assistance.

Key Features:

- Real-time obstacle detection (5–10 meters)
- Voice alerts for navigation and proximity warnings
- Dynamic path updates with customizable audio feedback
- Lightweight, user-friendly, and accessible design

Certifications

Huawei Academy Cairo, Egypt
Python Programming Trainee Aug 2022

- Completed intensive Python programming course covering data types, control structures, functions, and file handling

Information Technology Institute (ITI) Cairo, Egypt
Back-end training, Aug 2022

- Gained foundational and practical knowledge in AI concepts, machine learning algorithms, and real-Gained foundational and practical knowledge in .NET development with C# and database management using SQL Server.

AI & Design Thinking – IBM Skills Cairo, Egypt
Artificial Intelligence Training Program July 2023

- Gained foundational and practical knowledge in AI concepts and Design Thinking through IBM SkillsBuild program.

Extra-Curricular Activities

• Participated in multiple university-led **AI and Machine Learning projects** with real-world applications, focusing on accessibility, computer vision, and embedded systems.
• Regularly attend **workshops, webinars, and trainings** in AI, IoT, software engineering, and product design to stay updated with emerging technologies.
• Collaborated with peers on interdisciplinary projects integrating **AI models, embedded hardware (e.g. Raspberry Pi), and web/mobile interfaces** for innovative solutions.
• Proficient in **video editing and photo editing** to create impactful visual content for projects and presentations.
• Familiar with **multi-agent systems** concepts and implementations for developing intelligent distributed solutions.
• Contributed to team activities and knowledge-sharing sessions to improve technical communication and leadership skills.
• Engaged in continuous self-learning through **online courses on Coursera and Udemy** in areas such as deep learning, advanced Python, and cloud deployment.