Mahmoud Sameh

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A highly motivated Electrical Engineering Graduate (Final semester, 4.95/5 GPA, top of the 61st batch in engineering, Islamic University of Madinah) specializing in Artificial Intelligence and Control Systems with demonstrated experience leading student initiatives and research within the Engineering College and representing the university across national venues. An avid learner, finishing courses from the most prestigious universities globally, such as Harvard, Stanford, and more. Selected for the prestigious KAUST AI Summer Training Program (out of 100 nationally) and contributed significantly to a national victory in SDAIA's Enjaz Hackathon. Proven ability through years of experience developing end-to-end solutions combining hardware (Embedded Systems, Robotics) and software (Python, C, Deep Learning frameworks), while incorporating relevant analytical and mathematical approaches. Eager to apply advanced technical skills to challenging problems and contribute to research in engineering and deep learning.

EDUCATION

Islamic University of Madinah
Expected graduation May 2025
Bachelor of Science (B.S.) in Electrical Engineering
- Current GPA 4.95/5 (Academic Record) (Courses)

WORK EXPERIENCE

Islamic University of Madinah   Apr. 2023 – Present
Engineering College Student Contributor (Part-time)

- Enhanced the Engineering College's visibility by managing social media presence and creating content.
- Led student teams on college-level projects, offering technical insights and fostering teamwork.
- Contributed to shaping the college's public identity.
- Provided student perspective and feedback to faculty/staff regarding program initiatives and student engagement.

SKILLS

- Deep Learning
- Computer Vision
- Embedded Devices Programming
- Python (inc. Pytorch/Tensorflow/Pandas/CV2)
- Academic Research
- C Language
- Javascript/Django/HTML/CSS
- Circuit Design/Analysis
- Simulink/Simscape/MATLAB
- Control Theory

PROJECTS

[University Course/Competition Projects]

- **Hajj Help Center Navigator**
An easy-to-use and age-friendly device that provides navigation to the closest help center in the context of Al-Masjid Al-Haram. The device was built using an Arduino Nano to interface with various components (GPS, LED Display, Magnetometer, etc).

- **AI Lawsuit Classifier** *(Enjaz Hackathon Winner)*

Developed an AI system leveraging Natural Language Processing (NLP) to automatically classify lawsuit type from user input, eliminating erroneous inputs that can cause the lawsuit to go to the wrong court. Won on the national level in the Enjaz Hackathon 2025.

- **Automated Circuit Diagram Analysis System** *(Graduation Project)*

Created a large system using trained models in object detection, segmentation, image processing, and OCR to automatically detect components, trace connections, and read labels from electrical circuit diagram images. Then simulate the circuit and provide the operating point. *(Part of this work is going to be submitted to a scientific journal soon).*

- **AC to DC signal converter**

An electronics class project for a circuit that rectifies, regulates, and controls the output DC voltage level from an input AC signal.

- **Robosport Tennis Competition**

Helped develop and interface a tennis playing robot to represent the Islamic University of Madinah in 2023 WRO Robosport competition. It used a Raspberry Pi 4 to execute computationally intensive tasks like computer vision and image processing, while also coordinating the movements of the robot.

- **Inverted-Pendulum Self-Balancing Robot**

Modeled and simulated a non-linear system (self-balancing robot) design on Simulink and devising various control techniques such as model-predictive controllers (MPC) and deep reinforcement learning (DRL) to achieve the necessary behavior.

- **Radio Transmitter/Receiver using PWM modulation**

Implementing a transmitter/receiver circuit to transmit voice signal using generic components such as saw-tooth generator and various amplifiers. To gain a deeper understanding of the theory, it was implemented without the use of a microcontroller.

[Hobbyist Projects]

- **Islamic University Table Organizer**

A popular browser extension for Islamic University students that allows them to see their classes ordered by time and weekdays.

- **Bookshelf**

Harvard's CS50x final project, Bookshelf is a web app for browsing and managing books. Users can add and remove books from their library and label each book with a current status.

- **ReadImage bot**

A Discord bot that extracts text from the last image in the channel. It uses tesseract 5.x model to extract text from images, then sends it in a message.

- **Dynamic Website Publisher**

Saves a dynamic website and its associated resources locally, converts the website into static pages, and publishes the pages to a remote Git repository.

Comprehensive List: https://www.linkedin.com/in/mah-sam/details/projects/