

Israa Abdelghany

Robotics AI Engineer

CONTACT
INFORMATION

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PROFILE

Highly motivated Mechatronics Engineer, ranked 1st in the Mechatronics Department at MUST University (GPA 3.84), with expertise in Robotics, AI, and Machine Learning. Skilled in MATLAB, SolidWorks, ROS, Embedded Systems (C, C++), Python, and AI technologies. Currently pursuing an AI & Machine Learning internship at ITI to integrate AI with robotics. Completed multiple projects, including an autonomous mapping robot and a C programming database for school students.

Having completed secondary education in Saudi Arabia, I have developed strong adaptability to diverse cultures and environments. Passionate about innovation in AI and robotics, I am eager to contribute to MBZUAI’s vision and advance the field of intelligent automation.

EDUCATION

- Information Technology Institue (ITI) | 2024 – Present**
9-months Track AI&ML scholarship
- Deep Understanding of AI, ML, DeepLearning and Nueral Networks
- Misr University for Science and Technology | 2019 – 2024**
Bachelor of Science in Mechatronics Engineering
- GPA: 3.84
- Almohafaza Secondary school | 2016 – 2019**
Hafr Al-Batin, KSA
- Graduation : 99.98%

Information Technology Institue (ITI) 9-months Track

AI&ML scholarship

October 2024 – Present

Cairo, Egypt

- Deep Understanding of AI, ML, DeepLearning and Nueral Networks

**AOI Training Academy, Basics of Programming &
Operating CNC Turning & Milling Machines**

February 2023

Cairo, Egypt

- Introduction to CNC technology and machine components.
- Programming with G-code and M-code for CNC turning and milling.
- Setup, operation, and calibration of CNC machines.
- Tool path generation and optimization.
- Hands-on experience in producing parts using CNC machines.
- Emphasis on safety procedures in CNC machining.

AOI Training Academy, SIMATIC PLC Programming

September 2022

Cairo, Egypt

- Programming in the TIA Portal for S7-1200 and S7-1500.
- Hardware Configuration and Parameterization of the SIMATIC S7- 1200 modules.
- Data Management with data blocks / programming organization blocks (OB, FC, FB).
- Binary and digital operations in the function blocks.

Engovation, Fundamentals of Automotive Engineering

February 2022 – April 2022

Cairo, Egypt

- Overview of automotive systems and components.
- Detailed study of engine systems, transmission, and vehicle dynamics.
- Electrical and electronic systems in vehicles.
- Chassis, suspension, and brake systems.
- Basic maintenance and troubleshooting techniques.

AOI Training Academy, Helicopter Maintenance

September 2021

Cairo, Egypt

- Mechanical and electrical systems of helicopters.
- Avionics and engine maintenance.
- Helicopter aerodynamics and safety procedures.
- Flight control operations.

PROJECTS

Autonomous navigation robot for unknown environment

Developed a small car robot designed for 2D mapping of unknown environments, such as caves or hazardous areas. The robot utilized LiDAR sensors and was programmed using ROS and C++.

Advanced mapping and localization algorithms, including A* for path planning and Gmapping and Cartographer for map building, were implemented to ensure precise navigation and real-time map generation.

Bicycle design using ADAMS

Designed the mechanical structure using ADAMS, focusing on dynamic simulation and optimization to minimize the required manual effort and maximize power transmission efficiency. The goal was to enhance driving comfort and reduce physical strain, making the system accessible and user-friendly for both older adults and younger individuals, allowing for comfortable practice without fatigue.

Autonomous Obstacle-Avoiding Robot Using Arduino and

MATLAB

Developed an autonomous obstacle-avoiding robot leveraging Arduino and MATLAB for effective navigation and control. The project focused on implementing a finite state machine (FSM) to enhance obstacle avoidance capabilities.

The robot utilizes Arduino to interface with various sensors that provide real-time data on the environment. This data is transmitted to MATLAB, where it is processed to determine the robot's movement commands. MATLAB checks whether the sensor readings are within predefined limits and generates appropriate instructions, such as moving forward, backward, turning right, or turning left.

SmartWatering system

Developed a plant watering system using fuzzy logic, MATLAB Simulink, and Arduino Uno to enhance agricultural practices. The system integrates temperature, humidity, and soil moisture inputs from sensors (DHT11 and soil moisture sensor) to deliver precise watering, reducing water wastage and promoting healthier plant growth. The project features a comprehensive system diagram created with Proteus software, offering a foundation for future enhancements.

This innovative approach aims to revolutionize agricultural practices and contribute to environmental sustainability.

LANGUAGES

Arabic : Native

English : B2

Korean : A1

German : A1

PROFESSIONAL
EXPERIENCE

AI& ML Engineer | 2024–present

Information Technology Institute (ITI)

- Assisted in optimizing mechanical systems for manufacturing processes, improving production speed by 20%
- Drafted and implemented quality control procedures, reducing defects and inconsistencies by 30%
- Supported the creation of detailed project reports and documentation for senior stakeholders

Teaching Assistant in Mechatronics Department | 2024

MUST University

- Concepts of Digital Control Systems
- CNC

COURSES

Getting Started with Git and GitHub, Coursera – IBM

October 2023 – November 2023

Digital marketing level 1, Udacity – Egypt FWD

May 2021 – September 2021

Getting Started with Git and GitHub, Coursera – IBM

January 2024 – February 2024

Algorithmic Toolbox, Coursera – University of California San Diego

July 2024 – August 2024

ROS Basics I Course, Udemy

July 2024 – August 2024

ROS for Beginners II: Localization, Navigation and SLAM, Udemy

January 2024 – February 2024

Robotics with arduino level 1, ST smart

August 2021 – October 2021

AiCE – AI Career Essentials, ALX

May 2024 – July 2024

Introduction to Data and Data Science, 365 Data Science

November 2024

Train The Trainer Program: The Novice Trainer Level | Edraak

October 2024

Introduction to Git

November 2024

Foundations of Git, Data camp

November 2024

Introduction to Python, Data camp

November 2024

Intermediate Python, Data camp

December 2024

AWS Concepts, Data camp

January 2025

Understanding Cloud Computing, Data camp

January 2025

Introduction to Object-Oriented Programming in C++, Coursera,

University of London

October 2024

C++ Programming: Classes and Data, Coursera,

University of London

November 2024

Object-Oriented Programming in C++: Functions, Coursera,

University of London

December 2024

Python for Data Science, AI & Development, Coursera – IBM

November 2023

CERTIFICATES

HakerRank Problem Solving (Basic)

August 2024

REFERENCES

DR\ Bikheet Mohamed Sayed

- bikheet.sayed@ejust.edu.eg
- Course Instructor
- Researcher in National Institute of Standards & Adjacent doctor in Mechatronics

DR\ Bahaa Eldin Mohamed Naser

- bahaa.eliwa@must.edu.eg
- Course Instructor
- Head of the Mechatronics Engineering Department