

Abdelrahman Hany Computer Engineer

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EDUCATION

2021 Oct – 2026 Jul **Bachelor of Science in Computer Engineering**
Cairo, Egypt *Ain Shams University - GPA: 3.42*
Relevant Coursework: Data Structures & Algorithms, Operating Systems, Software Engineering, Database Systems, Software Project Management.

PROFESSIONAL EXPERIENCE

2021 Oct – Present **Part-time Freelance Developer** 

- Executed **100+ freelance automation projects**, transitioning from G Suite scripting to custom Python and AI agents.
- Designed and implemented **end-to-end** solutions integrating **web scraping, custom APIs, and cloud services** for complex enterprise workflows.

2025 Feb –
2025 Sep
Krakow, Poland **System Architect & Head of Communication** 
ASU ROAR — European Rover Challenge (ERC)

- Designed a **TP-Link mesh network** and conducted **RF testing** to establish **robust command/video links** for competition missions.
- Co-developed a **UART-to-CAN bus interfacser** for **reliable, high-speed data flow** between the **NVIDIA Jetson (ROS)** and microcontrollers.
- Resolved **critical synchronization errors** by restructuring the **ROS TF tree** (transform frames), restoring the localization and mapping pipeline.
- Configured **Gazebo & RViz** environments using **URDF/Xacro** models to enable **high-fidelity simulation and autonomy testing**.
- Mentored **100+ recruits** by creating and instructing two technical workshops on **ROS Simulation and Perception Systems**.

PROJECTS

2025 Sep – Present **RUNE (Microsoft-Sponsored Graduation Project)** 
Low-Code Automation Platform

- Architected the core execution logic using a **Domain-Specific Language (DSL)** to manage and interpret complex, **node-based workflows**.
- Designed the persistent **database schema and table architecture** to support **robust storage and high-speed retrieval** of workflow metadata.
- Developed the concurrent **Golang worker architecture** to handle **asynchronous task execution** and maximize system throughput.

2025 May **Cartnest E-commerce Platform** 
Full-stack e-commerce site (Team Project)

- Co-designed **database schema** and implemented **ORM classes**.
- Improved performance and scalability via **data fragmentation and sharding**.

2025 Apr **CHRONOS CPU Scheduler** 
Python desktop app for visualizing CPU scheduling (Team Project)

- Built desktop app with **FCFS, threading, and signal-driven** step simulation.

- Added real-time **Gantt chart** and process control for **4 schedulers**.
- 2024 May **GPS Tracking System** ↗
Live Tracking using Tiva C Microcontroller (Team Project)
 - Architected MCU-server **communication API** with a **GUI**.
 - Delivered an EEPROM driver supporting **500+** coordinate storage.

💡 SKILLS & LANGUAGES

Programming Languages – **C++, Python**, Java, JavaScript (JS), **Google Apps Script (GAS)**, Golang, Verilog, SQL

Robotics & Embedded – ROS, Gazebo, RViz, PCL, OpenCV, CAN Bus, URDF, TF Tree

Frameworks/Libraries – React, NextJs, React Flow, FastAPI, Flask

Tools – Git, Docker, Jupyter, VS Code, Cisco Packet Tracer

Operating Systems – Windows, Linux (Ubuntu)

Spoken Languages – Arabic (Native), English (Fluent), German (Basic)

💻 CERTIFICATIONS

- 2025 Aug **NTI: AWS Cloud Architect** ↗
- 2024 Sep **MIT 6.86x: From Linear Models to Deep Learning using Python** ↗
- 2024 May **MIT 6.431x: Probability - The Science of Uncertainty and Data** ↗
- 2023 Dec **Cisco Certified Network Associate** ↗
- 2022 Nov **CS50's Introduction to Computer Science** ↗

🏡 LEADERSHIP & VOLUNTEERING

- 2023 – 2024 **IEEE & GDSC (Google Dev Student Club)** ↗
Technical Workshop Instructor
 - Led hands-on technical workshops for **40+ engineering students** covering **networking fundamentals, TCP/IP, and subnetting**.
 - Created comprehensive lab materials for **Wireshark** packet analysis and **Cisco Packet Tracer** simulations.
- 2023 Dec **GDG Cairo (Google Developer Group)** ↗
Event Organizer & Volunteer
 - Assisted with event logistics, attendee guidance, and technical session support at **DevFest Cairo '23**.

🏆 AWARDS & HONORS

- 2025 Jan **Nokia Digital Design Hackathon - Participant** ↗
Competed in Nokia's competitive digital design hackathon.
- 2024 May **ASU AI Engineering Hackathon - 2nd Place** ↗
Developed a QA AI-powered proof-of-concept for an Ain Shams Competition.
- 2024 Oct **NASA Space Apps - Participant** ↗
Built an interactive dashboard with a chatbot to visualize 20-year environmental change patterns.
- 2023 Aug **ECPC'23 - Participant** ↗
Competed in the Egyptian Collegiate Programming Contest.