

# Abdelrahman Hany *Computer Engineer*

✉ abdulrahman.hany003@gmail.com    ☎ +201022333420    🌐 Abdelrahman Hany    🍪 DopeBiscuit

📍 Cairo, Egypt    🔗 Portfolio

## 🎓 EDUCATION

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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

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

- 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 interfacer** 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

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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**

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**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**

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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**

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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**

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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.