Youssif Mohamed Amin

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Profile Summary

Motivated Mechatronics Engineer with hands on experience in automation, electromechanical systems, and AI driven projects. I combine engineering expertise in control systems, robotics, and IoT integration with growing proficiency in machine learning, computer vision, and data annotation. My background spans from designing real world automation systems to building predictive APIs and visualization dashboards. I aim to contribute to innovative solutions that merge intelligent automation and data driven engineering to improve efficiency, sustainability, and performance.

Work Experience

AI & Data Project Developer (Freelance) – Remote | 2025 – Present
Developed the Cairo Air Pollution Prediction & Alert API using Python, FastAPI, and machine learning models. Built the Cairo Smart Energy Optimizer Dashboard with Streamlit, integrating prediction, retraining, and metric visualization. Conducted data cleaning, visualization, and feature engineering for environmental and energy datasets. Currently leading the Traffic Camera Analyzer for Air Quality project using OpenCV and YOLOv8 to analyze traffic density and estimate air quality patterns.

Mechatronics Engineer – Electromechanical Projects – Nile Electromechanical Company | Cairo, Egypt | 2023 – 2024
Led the design and commissioning of electromechanical systems for industrial clients. Integrated sensors, IoT components, and automation controls to enhance energy monitoring and operational efficiency. Coordinated cross-disciplinary teams to deliver projects on schedule and within budget. Prepared and reviewed shop drawings for mechanical and plumbing systems, ensuring accuracy and compliance with engineering standards.

BMS Engineer – NANSC (National Air Navigation Services Company) | Cairo, Egypt | Sep 2023 – Nov 2023
Monitored and optimized Building Management Systems (BMS) operations for national facilities. Collaborated with engineers, architects, and contractors to deliver integrated building automation solutions. Ensured project timelines, system performance, and energy efficiency targets were met.

Vehicle Management Systems Trainer – Ghabbour Auto | Cairo, Egypt | Sep 2021 – Sep 2021
Conducted workshops and simulations on vehicle diagnostic systems and electronic controls. Utilized computer-aided diagnostic tools to identify and troubleshoot vehicle system errors. Optimized training materials and delivered technical sessions for engineering trainees.

Education

B.Sc. in Mechanical Engineering (Mechatronics Track) Arab Academy for Science, Technology & Maritime Transport – Cairo, Egypt

Projects

• Smart Home Automation System – Developed using Arduino and LabVIEW, featuring temperature sensors and automated fan control.
• Inverted Pendulum Balancing System – Simulated in MATLAB with real-time motor control to maintain balance.
• Autonomous Obstacle-Avoiding Car – Built using IR and ultrasonic sensors for autonomous navigation.
• Robotic Arm with Master–Slave Control – Designed a robotic arm mimicking human movement; implemented real time control using MATLAB.
• Selective Compliance Assembly Robot Arm (SCARA) – Built a precision robotic arm for pick and place operations using Arduino and MATLAB.

Technical Skills

Programming & Tools: Python, FastAPI, Streamlit, OpenCV, YOLOv8, Scikit learn, MATLAB Engineering Software: AutoCAD, SolidWorks, LabVIEW, Inventor Embedded & IoT: Arduino, C Programming, Sensors, Microcontrollers Soft Skills: Teamwork, Leadership, Time Management, Communication, Critical Thinking, Working Under Pressure

Languages

Arabic: Native English: Advanced (B2+)