

IBRAHIM ALI GHANIM

MECHATRONICS ENGINEER | ARTIFICIAL INTELLIGENCE, COMPUTER VISION & SOFTWARE DEVELOPMENT

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[LinkedIn Profile](#)

PROFESSIONAL SUMMARY

Mechatronics Engineering graduate (2026), ranked 9th out of 90 students (Top 10%), with applied experience in artificial intelligence, computer vision, real-time software, APIs, and embedded systems. Built projects using Python, JavaScript, YOLOv8, OpenCV, Scikit-learn, FastAPI, Flask, MediaPipe, and Node-RED for visual inspection, anomaly detection, human-machine interaction, and intelligent control.

EDUCATION

B.Sc. in Mechatronics Engineering | University of Baghdad - Al-Khwarizmi College of Engineering | June 2026

Ranked 9th out of 90 Mechatronics Engineering students (Top 10% of the cohort)

TECHNICAL SKILLS

Artificial Intelligence & Machine Learning: Python • Scikit-learn • Isolation Forest • YOLOv8 • OpenCV • MediaPipe • MATLAB Vision • Object Detection • Anomaly Detection • Temporal Analysis • ROI and Edge/Orientation Analysis

Software & API Development: JavaScript • HTML/CSS • FastAPI • Flask • REST APIs • JSON/HTTP • Telethon • Real-Time Dashboards • Data Processing

Embedded & Industrial Integration: ESP32 • Arduino • MQTT • Serial Communication • Node-RED • Modbus TCP • SCADA/HMI • Factory I/O • Camera and Sensor Integration

Interactive 3D & Web Technologies: Three.js • WebGL • Rapier Physics • GLB/GLTF Models • Browser-Based Hand Tracking

SELECTED PROJECTS

NeuroGuard 4.0 | AI + IIoT + SCADA + PLC | [View Project](#)

Developed YOLOv8 bottle-cap inspection with a custom ROI workflow, Flask JSON API, Node-RED logic, consecutive-defect detection, and SCADA/HMI alarms.

PetroSafe AI | Temporal Anomaly Detection | [View Project](#)

Built a tank-monitoring prototype using Factory I/O, Node-RED, Modbus TCP, FastAPI, and a temporal Isolation Forest model for anomaly scores and fail-safe advisory decisions.

VisionSort AI | Computer Vision Automation | [View Project](#)

Integrated OpenCV, Python, Node-RED, Factory I/O, Modbus TCP, and HTTP for camera-based detection, automated sorting, and live monitoring.

Smart Ground Vehicle via BCI | Graduation Project | [View Project](#)

Integrated EEG signal processing, Python, ESP32, mobile control, an AI agent, and obstacle detection to translate mental commands into vehicle actions.

Interactive 3D Hand-Tracking Lab | JavaScript + Computer Vision | [View Project](#)

Created a browser-based 3D system using JavaScript, Three.js, MediaPipe, Rapier, and GLB/GLTF models for gesture-controlled movement, rotation, and object manipulation.

INTERNSHIPS & TECHNICAL EXPERIENCE

Researcher, MS Lab - Robotics & Advanced Projects | University of Baghdad

Contributed to robotics prototypes, embedded integration, interdisciplinary projects, and technical problem solving.

Technical Internships | Ministry of Electricity (2025) & Alchemy Scientific (2026), Baghdad

Gained exposure to SCADA/server systems and hands-on calibration, testing, and basic troubleshooting of sensors and laboratory instruments.

LANGUAGES

Arabic - Native | English - Intermediate