

Abdelrahman Elmorsi

Full-Stack Software Engineer | React, TypeScript, Python | AI-Powered Products

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Software engineer building applied AI and computer vision products, from OpenCV/XGBoost edge inference to speech-model integration and LLM evaluation. Builds the APIs and interfaces around the models using Python, FastAPI, and React. Control & Automation Engineering student at YTÜ, graduating June 2027 (expected).

EXPERIENCE

SmartSites

Software Engineering Team Lead | Sep 2026 - Present | Istanbul, Türkiye (Hybrid)

Software Engineer | Jul 2026 - Sep 2026 | Istanbul, Türkiye (Hybrid)

- Lead engineering for an AI construction-site monitoring platform covering worker safety, materials, subcontractor accountability, and progress verification.
- Own the vision pipeline using Python, FastAPI, OpenCV and XGBoost. Run edge inference and validate predictions against hand-counted ground truth.
- Built an AI assistant over live dashboard data and connected vision outputs to BIM quantity-takeoff and commercial workflows.
- Implemented project-scoped access control and load-tested backend reads. Backend suite exceeds 1,000 tests; shipped a mobile-first interface in four languages.

ManteeQ

Co-Founder & Technical Lead | Apr 2026 - Present

- Building an Arabic pronunciation coach with Wav2Vec forced alignment, Python/WebSocket services, and a React Native frontend for phonetic feedback.
- Selected for the ETKİM Yıldızları Acceleration Program to develop the MVP and optimize inference for edge deployment.

Turing

AI Quality Analyst (Contract) | May 2026 - Present | Remote

- Evaluate LLM outputs for factual grounding, logical consistency, and Turkish cultural relevance. Design multi-turn prompts over retrieval datasets and document RAG evaluation failures.

SELECTED PROJECTS

ICS Security & Anomaly Detection via Digital Twins | Graduation project

- Built a Next.js/Three.js dashboard ingesting ICS telemetry over Modbus TCP and OPC UA. Evaluated five unsupervised models across four attack scenarios.
- Hardware-in-the-loop with a Siemens S7-1200 PLC: under 20 ms Modbus round-trip and sub-500 ms time-to-detection in test runs; best F1 71.6% on simulated $\pm 2.5\sigma$ sensor spoofing.

Robot Arm Ecosystem | YTÜ Yıldız Kaşifleri grant

- Built C++ control firmware, a Python/serial bridge, and a React Native interface for an EMG-controlled 5-DOF arm. Random Forest gesture classifier reached 94% accuracy in test runs.

TECHNICAL SKILLS

AI & vision: Python, OpenCV, XGBoost, Random Forest, PyTorch, Wav2Vec, RAG, LangChain, LLM evaluation

Product engineering: FastAPI, SQLAlchemy, PostgreSQL/PostGIS, Docker, WebSockets, React/React Native, Next.js

Additional: C++, TypeScript/JavaScript, SQL, Modbus TCP, OPC UA, embedded/control systems

Languages: Arabic - native; English - C1; Turkish - B2

EDUCATION

Yıldız Technical University | B.Sc. Control & Automation Engineering

Istanbul, Türkiye | Oct 2023 - Jun 2027 (expected)

LEADERSHIP & AWARDS

YTU Arab Students Union: Technical Founder (Aug 2025 - Sep 2026). YTÜ International Students Club: Secretary General & Web Lead (May 2024 - Jun 2025); led 50+ volunteers.

TEKNOFEST 2025 finalist. MathWorks Hackathon: 2nd (May 2026). BEST: 3rd (Apr 2026). SKYDAYS CTF: 6th (2025), 9th (2024).