

HAMZA HUSSEIN

Computer Engineering Student · AI/ML, Computer Vision, Full-Stack Web & Embedded Systems

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PROFILE

Senior Computer Engineering student at the American University of Kuwait, working across AI/ML, computer vision, full-stack web and embedded systems, and checking results hard enough to catch the ones that do not hold up.

EDUCATION

American University of Kuwait – B.E. in Computer Engineering

Expected Jan 2027

GPA 3.1 / 4.0 · Salmiya, Kuwait

TECHNICAL PROJECTS

Vehicle Classification: Custom CNN vs MobileNetV2 · Python, TensorFlow, Computer Vision

- Audited 912 vehicle images before training, rejecting 7 and catching a file duplicated across two classes by SHA-256 hashing, then built a reproducible 70/15/15 split.
- MobileNetV2 transfer learning reached **91.97% test accuracy and 91.76% macro F1** on 137 held-out images; the from-scratch CNN collapsed to predicting one class, which is what made the comparison conclusive rather than assumed.
- Exported the trained model to TensorFlow.js and deployed it to run entirely in the browser, with no server, no API and no image ever leaving the visitor's machine.

Volta: E-commerce Store for Kuwait · React, Node.js, Express, MongoDB, Stripe

volta-kw.vercel.app

- Built and deployed an Arabic-first, right-to-left phone store: React and Vite frontend on Vercel, Node and Express REST API on Render, MongoDB, and **Stripe payment processing**; 42-device catalogue, WCAG 2.1 AA, **244 automated tests**.
- Added natural-language search that uses Gemini to turn a typed sentence into structured filters, and handled three-decimal currencies such as the Kuwaiti dinar, which divide by 1,000 rather than 100.

Household Energy Forecasting · Python, XGBoost, LSTM, Time Series

- Engineered lag and rolling features over 2,075,259 minute-level readings (34,565 hourly rows), with a chronological split and every rolling window shifted forward one hour so it cannot see the value it predicts.
- Found target leakage in the first version: an R-squared of 0.9992 driven 78% by same-hour measurements. Removing it gave a true **R-squared of 0.598 and RMSE of 0.463 kW**, with XGBoost beating a two-layer LSTM (0.410) on identical features.

Used Car Price Prediction · Python, pandas, scikit-learn

- Cleaned and modelled 7,251 listings with pandas and scikit-learn linear regression, reaching a test R-squared of 0.699.

Smart Parking System · ESP32, IoT, Embedded Systems

- Built an IoT parking monitor on a single ESP32 with ultrasonic and IR sensing, automated gate control, an LCD and a local Wi-Fi web interface for live availability; both sensors must agree before the gate moves.

EXPERIENCE

Student Life Office Assistant, Part-Time · American University of Kuwait

Sep 2025 – Apr 2026

- Supported daily office operations and student requests, and coordinated events, logistics and communications across teams while maintaining accurate records.

CERTIFICATIONS

Web Development with AI · CODED Academy, UniCODE Program

Sep 2026

Credential ID 05d266f605857957a0fac0a37410de4c, verifiable at coded.kw.

Make Agentic AI Work for You · IBM SkillsBuild

Aug 2026

Inside a Cyber Attack · Sentra Academy, with the AUK Cybersecurity Club

Jul 2026

TECHNICAL SKILLS

Programming Python, JavaScript, C/C++, Java

Web & APIs React, HTML, CSS, Node.js, Express, REST APIs, MongoDB, Stripe, Vercel, Render, serverless functions

AI & Data TensorFlow, computer vision, CNNs, transfer learning, XGBoost, LSTM, time series forecasting, LoRA, QLoRA, PEFT, generative AI, pandas, NumPy, scikit-learn, regression, EDA

Embedded & IoT ESP32, Arduino, ultrasonic and IR sensors, Wi-Fi, Bluetooth, data acquisition

Tools & Security Git/GitHub, MATLAB, VS Code, Google Colab, Linux, TensorFlow.js, web security fundamentals