

Karim Ray Mahdi

Houston, Texas | (832) 244-4296 | karimraymahdi@gmail.com | [LinkedIn](#)

EDUCATION

Texas Tech University

B.S., *Electrical Engineering, Minor in Mathematics*

Aug 2026

Lubbock, TX

- **Coursework:** VLSI Processing, Modern Digital System Design, Microcontroller Project Lab, Control System Analysis and Design, Signals and Systems, Network Analysis, Electromagnetic Fields, Advanced Electronics, Machine Learning, Robotics Project Lab, Power Systems Project Lab, Microcontrollers with C, C Programming with Hardware Applications

PROFESSIONAL EXPERIENCE

Motonari Studio

Co-Founder

Oct 2022 - Oct 2024

Austin, TX

- Designed secure cryptographic systems in C++ and MATLAB to reduce key exposure risk and built AWS real-time monitoring with Git, improving system reliability and transaction accuracy.
- Presented secure cryptographic architectures and real-time monitoring solutions to VCs and top tech leaders, leading to positive feedback, initial project funding, and adoption of key components into their technology strategies.

UNDP Renewable Energy Internship

Intern

May 2022 - Aug 2022

Lebanon

- Supported solar PV and wind feasibility studies by assisting with load estimation, system sizing, and LCOE analysis for renewable energy projects.
- Assisted with preliminary electrical schematics in Autodesk EAGLE and helped review grid interconnection requirements and design documentation.
- Used Python Pandas to analyze power generation and performance data, helping identify efficiency trends and support project evaluation.

PROJECTS & EXTRACURRICULAR

Tech Innovation Labs

Dec 2024 - Present

- Founded a 20+ member engineering organization focused on AI, embedded systems, and hardware prototyping.
- Building a wearable EMG interface that translates muscle activity into control signals in real time, using an FPGA to handle signal processing and embedded CPUs to run inference, all designed for deterministic and reliable human-machine interaction.

Autonomous Minesweeper Rover System

Embedded Systems Project Lab

- Designed and implemented a real-time autonomous system capable of detecting and physically retrieving objects in real time, integrating sensor fusion and motion control directly on an MSP430FR6989 microcontroller using embedded C with a focus on reliability and predictable timing.

OCR-Based AI Mail Sorting Machine

Microcontroller Project lab

- Built a hardware-accelerated AI sorting system using a custom-trained YOLO model and optimized OCR pipeline, with structured post-processing logic designed for FPGA deployment and deterministic real-time integration with motor control hardware.

Smart 40V DC Protection and Monitoring System

Power Systems Project lab

- Designed a smart 40V DC fault detection and protection system that monitors for reverse polarity, over-voltage, and over-current in real time, automatically isolates and restores the load upon fault detection, and displays live voltage, current, and status readings on an integrated digital display.

SKILLS

- **Programming Languages:** Rust, Python, C++, C, MATLAB, Verilog, VHDL
- **Design & Analysis:** MATLAB/Simulink, Multisim, LTSpice, Autodesk EAGLE, Fusion 360
- **Operating Systems & Programs:** Linux (Arch, Ubuntu), Windows, AWS Cloud, Docker, Git/GitHub
- **Machine Learning & Data:** NumPy, Pandas, TensorFlow/PyTorch, OpenCV
- **Languages:** English, French, Arabic