

Mikael Karim

Houston, TX | [LinkedIn](#) | [GitHub](#)

EDUCATION

University of Houston

May 2027

Bachelor of Science in Computer Engineering and Analytics | GPA: 3.51

Relevant Coursework: Data Structures and Algorithms, Programming Applications in Electrical and Computer Engineering, Computer Architecture, Microprocessor Systems, Circuits I and II

SKILLS

Programming Languages: JavaScript/TypeScript, Python, Java, C, HTML, CSS

Technologies/Operating Systems: Next.js, Node.js, Express, Flask, Spring, Spring Boot | PostgreSQL | React, LibGDX | Git | Chrome extensions | Windows, Linux

Spoken Languages: Fluent in English and Urdu; Basic Knowledge in Spanish

Work Eligibility: Eligible to work in the U.S. with no restrictions.

EXPERIENCE

Hawl Technologies

Apr 2026 – August 2026

Remote | Lead Backend Developer

- Architected Flask backend services for a **Chrome extension** interfacing with major **LLM platforms** (ChatGPT, Claude, Gemini), integrating a local **SLM** (Small Language Model) **pipeline** for prompt optimization.
- Directed a team of 3 backend engineers** across fast-paced sprints, enforcing code quality through **PR reviews** and establishing a **modular controller-service architecture**.
- Optimized extension background performance by offloading local ML processes to **Chrome web workers**, eliminating main-thread UI freezing and **reducing request latency by 6 seconds**.

PROJECTS

Predictive Maintenance Model for Jet Engines | *Python, NASA CMAPSS Dataset* | [View code](#)

- Developed a machine learning pipeline to predict Remaining Useful Life (RUL) of aircraft engines using sensor data, achieving a **NASA score of 10.6** (32% improvement over baseline linear models).
- Engineered **time-series features** (lag variables, rolling statistics) to identify engine wear and provide a better fit for **XGBoost**, **Random Forest**, and **Linear Regression models**.
- Validated results using NASA's **asymmetric scoring function**, penalizing overestimated RUL, which aligns with real-world safety practice.

AI-Powered Fitness Tracker | *React, TypeScript, MediaPipe, Jest* | [View code](#)

- Designed a **real-time fitness tracker** using Google MediaPipe Pose to track and validate exercise form at 30+ FPS, providing instant user feedback in the browser.
- Developed a **3-stage Finite State Machine (FSM)** integrated with **signal processing algorithms** (Exponential and Linear Moving Averages, Median Filters) to eliminate outliers/spikes and accurately count repetitions.
- Followed **Test-Driven Development (TDD)** principles by first writing comprehensive tests using **Jest** before implementing core functionality, reducing bugs and ensuring precision.

Full-Stack File Management Application | *TypeScript, Prisma, PostgreSQL, Node.js, React* | [View code](#)

- Built a **cloud-integrated** file uploader supporting **nested directories** through a **self-referencing database schema**.
- Implemented **type safety** using a TypeScript monorepo across a React frontend and a Node.js API.
- Designed PostgreSQL **schemas** and handled **relational queries** and **migrations** using Prisma ORM.