

# GABRIEL EDWARD MARQUEZ

Data Scientist • Full-Stack Web Developer • Machine Learning Engineer

AI/DS undergraduate with hands-on experience in ML, full-stack development, and IoT systems. Built production dashboards (Next.js + Firebase), trained ML/CV models, and delivered real deployments in industry, research, and hackathons. Strong focus on applied machine learning and rapid prototyping.

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## Experience

### Machine Learning Engineer

1/2026 - Present

Sports Vector

Qatar Science and Technology Park, Qatar

- **Optimized** system-wide latency by **90%**, reducing inference and API response times from 3 minutes to under 20 seconds through strategic SQL query refactoring and data pipeline streamlining.
- **Architected** and deployed a production-grade, full-stack analytics platform utilized by **national cricket teams** and professional franchises to generate real-time in-action insights and prescriptive ML-driven game strategies.
- **Enhanced** RAG system reliability and data accuracy by systematically fine-tuning hyperparameters—including temperature and retrieval thresholds—to ensure high-fidelity, context-aware AI responses for competitive sports analysis.

### IT Student Assistant

5/2024 - Present

University of Doha for Science and Technology

Duhail, Qatar

- Assisted in lab sessions for programming, web development, and introductory data science, helping students debug code and understand core concepts.
- Guided students in Python, JavaScript, HTML/CSS, and data analysis tools.
- Collaborated with instructors to prepare lab materials and streamline technical activities.

### Research Intern

7/2025 - 8/2025

Columbia University Affiliation, University of Doha for Science and Technology

Remote | Doha

- Selected for a **Columbia University-affiliated AI in Healthcare research program**, focusing on national AI implementation in Qatar.
- Studied AI adoption, readiness, and integration frameworks for medical systems using data science and ML methodologies.
- Produced evidence-based recommendations in collaboration with faculty mentors for healthcare stakeholders.

### Full Stack Software Developer

2/2025 - 7/2025

Cleano Laundry

Doha, Qatar

- Led development of the **Cleano vendor dashboard**, enabling vendors to manage orders, pricing, and services; used daily by **20+ vendors**.
- Implemented real-time workflows using **Firebase (Firestore, Auth, Storage)** and built modular **Next.js** components for high responsiveness.
- Added analytics dashboards (orders, customer trends, revenue) and improved performance across devices.

## Education

### BAsc. in Data Science and Artificial Intelligence

7/2022 - Present

University of Doha for Science and Technology | CGPA: 3.7 / 4.0

Duhail, Qatar

- Coursework: Machine Learning, Data Analysis & Visualization, Deep Learning, Distributed Computing, Data Mining
- Strong foundation in Python, Java, SQL, Statistics, and Linear Algebra

## Projects

### Transcriptify – Privacy-First Academic Analytics Dashboard </> ↗

1/2026

- **Engineered** a privacy-centric extraction engine using **pdfjs-dist** to parse unstructured PDF transcripts 100% in-browser, ensuring zero server-side data exposure.
- **Developed** a comprehensive analytics dashboard with **Next.js 15** and **Recharts**, featuring GPA trend visualization, subject-specific radar charts, and an interactive "What-If" performance simulator.
- **Designed** a unique "Digital Chalkboard" interface utilizing **Framer Motion** and **GSAP**, delivering a high-performance, themed user experience for real-time academic tracking.

### Mask-Based Membership Inference Attack (MBA) for RAG systems </>

11/2025

- **Implemented** a local Mask-Based Membership Inference Attack (MBA) framework for Retrieval-Augmented Generation (RAG) systems, utilizing **Llama3**, **Mistral**, and **Ollama** to identify data membership through fragmented word extraction and adjacency filtering.
- **Optimized** a high-performance RAG pipeline on an **RTX 4060** using **FAISS** and **BM25** retrievers, achieving a peak **AUC of 0.9994** on the HealthcareMagic dataset during privacy vulnerability benchmarking.
- **Conducted** extensive ablation studies comparing embedding models (**BGE-small**, **MiniLM**) and retrievers to quantify the impact of architectural choices on the success rate of retrieval-based membership leakage.

### Footballer FaceGAN - Attribute-Controllable Face Generator </>

10/2025

- Built a compute-efficient **InfoGAN + DiffAugment** model to generate 128×128 footballer face portraits using the FM23 Cutout dataset.

- Designed a **DCGAN + InfoGAN hybrid** with spectral normalization, MI loss, and EMA stabilization; trained efficiently on an **RTX 4060**.
- Implemented **Gradio** tools for latent-space exploration (continuous codes, PCA sliders, category clusters), and produced a reproducible research report with quantitative metrics (FID/KID).

## Hackathons

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### **1st Place** - UDST ACM Student Chapter Website Gamification Hackathon, 9/2025

- Built a gamified ACM website that boosted student engagement through point-based challenges and leaderboards, using React.js + Firebase.
- Integrated authentication and activity-tracking modules via REST APIs.
- **1st Place** among 10+ university teams for innovation and execution.

### **Top 15 Finalist, Second Phase Incubation** - Qatar Innovation Program, 8/2025

#### **TupperCare: Smart Food Spoilage Detection System**

- Built **TupperCare**, a smart spoilage detection system using methane, air-quality, and temperature/humidity sensors; trained regression + CV models via sensor fusion.
- Engineered a modular, low-cost prototype compatible with standard Tupperware; led backend data logic and ML implementation.
- Selected as **Top 15 out of 200+** nationwide teams and advanced to the MVP incubation phase.

### **Second Phase Finalist** - National Planning Council Datathon, 2/2025

#### **GreenHealth AI: AI-Driven Urban Health & Sustainability Platform**

- Built an AI-driven platform that analyzes air-quality and urban-heat indicators to support environmental health monitoring and sustainability planning.
- Integrated real-time data pipelines and delivered dashboards aligned with Qatar's National Data & Statistics Strategy.
- Finalist at the National Planning Council Datathon and presented insights to government stakeholders.

### **5th Place Overall** - Carnegie-Mellon University-Qatar Lifelines Hackathon, 2/2025

#### **Wrist Assured by SmartBand: Wearable for Emergency Response Systems**

- Built **Wrist Assured**, an AI-assisted emergency wearable with real-time GPS tracking, vital-signal monitoring, and visual/auditory alerts.
- Integrated IoT hardware (GPS module, LED, buzzer) with a mobile app using the Google Maps API for live location updates.
- Achieved **Top 5/93** nationally for innovation in health and safety tech.

## Skills

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### Languages

Python • Java • JavaScript • SQL

### ML/AI

PyTorch • Scikit-learn • Optuna • Pandas • NumPy • Ollama (Mistral/Llama3) • Google Gemini API • AutoML

### Data & Business Intelligence

PowerBI • Looker • SQLite • MongoDB

### Web Development

Next.js • Firebase • Tailwind/ShadCN • Vite • FastAPI • Supabase

### IoT

Arduino • Sensor Integration (Gas, GPS) • MKR IoT Carrier

### Tools

Git • Google Maps API • VS Code • Render

### Soft Skills

Communication • Team Collaboration • Rapid Prototyping • Leadership

## Certifications

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📖 **Google Masterclass: Looker, the next wave of BI** - Google Center of Excellence, 9/2025

📖 **Associate Data Analyst in SQL** - DataCamp, 5/2023

📖 **Data Analyst in Python** - DataCamp, 4/2023