Emmanuel Mokua

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EDUCATION

Howard University Washington, DC
Bachelor of Science in Computer Engineering, Minor in Computer Science *Aug. 2022 – May 2026*

TECHNICAL SKILLS

Languages: Python | Go | JavaScript/TypeScript | C++ | SQL
Frameworks/Libraries: React | Flask | FastAPI | Tensorflow | Pandas
Tools: Git | Docker | AWS | Google Cloud Platform
Relevant Coursework: Data Structures & Algorithms (CS II) | Computer Networks | Discrete Mathematics | Calculus I to III | Engineering Programming and Application | Advanced Digital Systems | Computer Organization

EXPERIENCE

Meta Platforms, Inc. Menlo Park, CA
Software Engineering Intern *June 2024 – August 2024*

- Implemented feature dynamic **logistic regression models** using stochastic gradient descent, achieving a **47% improvement in classification accuracy** by **fine tuning** learning rates to minimize cross-entropy loss.
- Improved data retrieval speed by **refactoring database schema** for denormalization, optimizing query paths using Prisma's **nested data loaders** and **caching** recurrent queries resulting in a 1.5x server speed-up.
- Implemented **model checkpointing** to cache model parameters and state at defined intervals to local storage to retain weights and biases between page refreshes, enabling persistence through page reloads.

Howard University Washington, D.C
Undergraduate Research Assistant *October 2023 - Current*

- Customized network settings to enable multi-carrier transmission and massive MIMO, supporting simulations of over **500 Mbps throughput**, for evaluating network performance under real-world, high-capacity scenarios.
- Designed and simulated RF signal processing chains in GRC, incorporating **advanced filters and modulation schemes** to accurately model **doppler shift** conditions, increasing simulation fidelity by **30%**.

PROJECTS

vOXgen | *Climatiq API, Python, Pandas, ScikitLearn, MongoDB, Git* November 2024

- Leveraged OpenAI's GPT-4 for NLP to extract key regulatory phrases, and implemented a weighted scoring system with **cosine similarity and semantic embeddings** to match and compare compliance standards.
- Built a linear regression model to predict carbon footprint estimates using Climatiq API data with **user-specific cloud usage metrics**, producing carbon estimates in real-time with a mean prediction error under **5%**.

Low-Level Alien Shooter | *VHDL, Vivado, Git* March 2024 - April 2024

- Designed **Finite State Machines** to control state-based behaviors, implementing individual states for player movement, alien movements, and collision detection in VHDL.
- Utilized **Vivado Design Suite** for VHDL coding, simulation, and synthesis, optimizing resource allocation to **reduce logic resource usage by 15%**, and maintained synchronization across game modules.
- Designed a VGA controller to manage signal timing for screen refresh, sync pulses, and **pixel mapping**, achieving seamless visuals at a **640x480 resolution** and ensuring display stability.

Beatz | *Python, Swift, Tensorflow (**Google HBCU Hackathon**)* January 2024

- Enhanced mood classification accuracy by **25%** with Gemini API by refining sentiment parameters, such as **keyword weighting** and contextual relevance, which improved the model's emotional categorization.
- Organized asynchronous API calls and implemented an **LRU caching** strategy for repeated song suggestions, achieving consistent playlist creation times under **30 seconds**.

AWARDS & LEADERSHIP EXPERIENCE

- **1st Place:** Google HBCU Hackathon, Black Blockchain Summit Hackathon, PNC x Howard Pitch Competition
- **Scholarships:** 2x Amazon–Codepath Scholar, HU Capstone Scholarship
- **School Orgs:** ColorStack, PNC Prime Incubator Program, Howard University Robotics Organization, Howard University Entrepreneurial Society, National Society of Black Engineers
- **Volunteer Work:** Backend Team Lead (ERP Software) for Mansart Engineering & E-Commerce store for GreenSpacesKE