Ayman Noreldaim

(319)-569-9986 | aymann@mit.edu | linkedin.com/in/aymann121| Cambridge, MA

EDUCATION

Massachusetts Institute of Technology - GPA: 4.9/5.0 *Cambridge, WA: August 2023 – May 2027*

B.S in Computer Science & Artificial Intelligence and Minor in Mathematics

Related Coursework: Data Science, Algorithms, C and Assembly, Real Analysis, Machine Learning, Inference, Computer Architecture

SKILLS

Programming: Python, JavaScript, CSS, HTML, Java, NumPy, Matplotlib, C++, Risc-V, TypeScript, Haskell, TypeScript

Tools: Git, SSH, Firebase, Visual Studio, React, tailwind.css, Angular, MongoDB, Mongoose, PyTorch, TensorFlow

Languages: English, Spanish, Arabic (Limited Working Proficiency)

Courses and Certificates: Google's Machine Learning course, MIT PKG Social Impact Certificate

EXPERIENCE

Software Engineering Internship • Google *Kirkland, WA: June 2025 – September 2025*

- Investigated the feasibility of AI-driven test flake predictions as an alternative to heuristic-based methods.
- Collected and organized code-push, bug, and test data using **Python, Pandas, Data Queries,** and **Google Internal Libraries**.
- Fine-tuned existing **Gemini/Gemma** models to predict flaky tests in the **Spanner DB** codebase, improving the reliability of the pre-submit testing system.

Decentralized AI Researcher • MIT Media Lab *Cambridge, MA: September 2024 – February 2025*

- Trained machine learning models in a decentralized manner with **PyTorch**.
- Designed and conducted systematic experiments to evaluate and optimize performance factors like communication overhead, model convergence rates, and potential privacy leakage.
- Optimized code to achieve a ~25% faster convergence rate and selectively pruned 10% of data between communicating nodes for aggregation efficiency.
- Developed web interface using **React** allowing users to train models and share model data securely within browser.

Software Engineering Intern • Birth by Us *Sacramento, CA: June 2024 – August 2024*

- MIT PKG Social impact internship with the purpose of developing a web app to help black mothers through the pregnancy and postpartum process using **Angular**, **MongoDB**, and **Typescript.**
- Helped build backend by using **Mongoose** APIs to pull and manipulate sensitive data to the client side.
- Implemented external front-end libraries like pdfmake and chart.js to display informational features to users.
- Facilitated collaboration and communication among interns by organizing and leading regular meetings.

Nuclear Science Lab Researcher • MIT *Cambridge, MA: December 2023 – May 2024*

- Used Collider Monte Carlo Simulation samples to reconstruct the mass of the W Boson. One method included measuring the effective cross sections of quarks the W boson decays into by finding which energy levels return maximal values. Presented at the Annual FCC Conference at MIT (April 2024).
- Research included working with tools like **Jupyter Notebook**, **SSH**, **Python**, and **CERN virtual environment**.

PROJECTS

Markov Probability Simulator • **Personal**

- Developed a Markov Chain Monte Carlo simulator in JavaScript using **Node.js** and libraries such as **TensorFlow.js** and **math.js**, implementing Metropolis–Hastings and Bayesian inference for modeling state transitions.
- Applied random sampling techniques with configurable burn-in rates to analyze changes in chain mixing speeds.
- Built interactive state graphs, probability heatmaps, and convergence plots using **D3.js** and **Plotly.js** for visualizations.

Portfolio Website • **Personal**

- Created an open-source portfolio website using **HTML**, **CSS,** and **JS** with front end frameworks like **React**, **Next.js**, and **tailwind.css** and backend frameworks Node.js and **Firebase**. Hosted on Vercel and continually updated.

ACTIVITIES AND LEADERSHIP

National Society of Black Engineers **(NSBE**), Muslim Student Association **(MSA**), Scholars of Finance **(SOF**), Cross Country & Track and Field **(XC & TF),** Dorm Floor Representative