Mahad Hassan

mahadhassan.hello@gmail.com 🔗 | mahadhssn.com 🔗 | +1 (289) 952-3792 | Burlington, CA | GitHub 🔗 | LinkedIn 🔗

EDUCATION

McMaster University 🔗 — May 2027

Honours Software Engineering Co-op, B.Eng (3.9 GPA) — *Hamilton, CA*

- Achievements: Entrance scholarship for exceptional performance | 2nd Place at MacEngComp 24' | Finalist at MacEngComp 23'
- Courses: Data Structures & Algorithms | OOP (Java) | Development Basics (C, Git, Bash) | Math in Python | Linear Algebra
- Leadership: Events VP, MacPSA | VP Operations, Voices at Mac | Attendee Relations Exec, DeltaHacks | Website Dev, MacSES

TECHNICAL SKILLS

Languages: Python, Java, C/C++, JavaScript, TypeScript, SQL, MATLAB, Bash, Verilog, Latex, Markdown, YAML, UML

Web Dev: HTML, CSS, React.js, React Native, Tailwind CSS, Node.js, Django, Vercel, Netlify

Technologies & Tools: VS Code, PyCharm, Jupyter, GitHub, Confluence, Jira, Firebase, Maven, Vim, NoSQL, GIT, Anaconda, Putty, AWS, TensorFlow, Matplotlib, NumPy, Pygame, Pandas, DataDog, KPOW, Apache Kafka Topics, Astro

Other Skills: CAD, MS Office, Quanser, Problem Solving, Computer Assembly, Management, Data Analysis, Agile

EXPERIENCE

Software Engineer Intern 🔗 — May 2025 – August 2025

TD Bank — *Toronto, CA*

- Developed **FRAM**, a microservice implementation in **Java/Spring** on **Azure** using **Kafka** for data transfer and async design
- Migrated **API client** processing to **non-blocking** calls, improving efficiency and delivering ~**$1M** in annual cost savings
- Improved **CI/CD** by configuring GitHub Actions for **20%** faster deployments of **7 microservices** to the **PAT** region
- Updated **Terraform** configurations to support infrastructure **failover testing** in secondary environments

Software Developer 🔗 — January 2025 – Present

McMaster iBioMed Society — *Remote*

- Developing a **mobile app** with **React Native** and **Firebase** to centralize **mental**, **physical**, and **financial support** for patients
- Implementing end-to-end **encrypted features**, including a **secure medical resume** section and **protected data storage**
- Designing an **accessible**, user-focused interface to **ensure privacy**, **data security**, and **seamless patient interaction**

Cybersecurity Engineering Intern 🔗 — July 2023 – August 2023

Ras Laffan Power Company — *Ras Laffan Industrial City, Qatar*

- Designed and developed **DCS logics/graphics**, **controllers, I/Os, HMIs,** and **Historians** improving efficiency by **15%**
- **Updated Anti-Virus definitions,** increasing threat detection rates by **20%,** and completed **switch configurations** via **Putty**

PROJECTS

Cybersecurity System 🔗 | *Python (OpenCV, Flask, Cryptography), SQL, Git* — *2nd Place @ MacEngComp 24'*

- Designed a security system combining **facial recognition**, a **password manager**, and **file encryption** to enhance data protection
- Leveraged Python and SQL to develop a solution within a **7-hour coding sprint**, securing **2nd place among 30+ teams**

Portfolio 🔗 | *JavaScript (React, Node, Tailwind CSS)*

- Developed a **full-stack** portfolio website with **React** and **Tailwind CSS** for the frontend showcasing skills and personal info
- Implemented a **Node.js backend** to handle server-side functionality for and support dynamic content features

Digit Recognizer AI 🔗 | *Typescript (React, Tailwind CSS), Python (TensorFlow, Matplotlib)*

- Built an **8-layer CNN** with **99.3% accuracy** on MNIST, trained on **60,000** grayscale digit images, and tested on **10,000**
- Used **Matplotlib** to visualize model predictions with confidence levels for each digit class, including probabilities

Tic-Tac-Toe AI 🔗 | *Python (PyGame)*

- Compiled an **unbeatable Tic-Tac-Toe AI** by implementing the **Minimax Function** using **Object-Oriented Programming**
- Used **PyGame** to enable gameplay against either a **human or the AI** through a **selectable game mode interface**

C-View 🔗 | *C, Bash, Git*

- Developed a versatile **C-based utility** to enhance images with filters like **grayscale**, **reflection**, **rotation**, **edge detection**, and **blur**
- Designed for low-resource environments, processing images up to **30% faster** than comparable tools with reduced memory use