Mahad Hassan

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Education

McMaster University Hamilton, CA
Honours Software Engineering Co-op, B.Eng ***(3.9 GPA)*** *May 2027*

- **Achievements**: $3k scholarship | 2nd Place at MacEngComp 24' | Finalist at MacEngComp 23'
- **Courses**: Data Structures & Algorithms | OOP (Java) | Development (C, Git, Bash) | Math in Python | Databases
- **Leadership**: Events VP, MacPSA | VP Operations, Voices@Mac | Attendee Relations, DeltaHacks | Web 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, Spring, 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 Developer January 2025 – Present
McMaster iBioMed Society *Remote*

- Developing an **app** with **React Native** and **Firebase** to centralize **mental**, **physical**, & **financial** support for patients
- Implementing end-to-end **encryption**, 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**

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

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 **configured switches** via **Putty**

Projects

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

- Designed a system combining **facial recognition**, **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
- 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**
- Utilized **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** using the **Minimax** function via **Object-Oriented Programming**
- Used **PyGame** to enable gameplay against either a human or the AI through a selectable **GUI**

C-View | *C, Bash, Git*

- Developed a **C-based utility** to apply filters like **grayscale**, **reflection**, **rotation**, **edge detection**, and **blur**
- Designed to process images up to **30% faster** than comparable tools with reduced memory use