Goshanraj Govindaraj

437-329-9501 | govindag@mcmaster.ca | LinkedIn | GitHub | goshanraj.ca

Education

Bachelor of Applied Science, Honours Computer Science — ***GPA:*** *3.9/4.0*
McMaster University, Hamilton ON — *Sept 2024 – Apr 2028*

Experience

Undergraduate Research Assistant — *July. 2025 – Present*
McMaster University, Hamilton ON

- Working under the supervision of **Dr. Behrouz Bakhtiari** and **Yunfei Ma** in the Business Analytics Lab, focusing on using computation to predict performance trends and derive insights of popular sports
- Applying machine learning techniques to sports data spanning for **1000+** players by performing data preprocessing, exploratory analysis, and model development using **Python** and **PyTorch** to drive predictive performance insights
- Evaluating model performance and interpretability in collaboration with **5** lab members to ensure insights are **actionable** and aligned with real-world **sports strategy**

Projects

Computer Vision Eye Monitor | *Python, OpenCV, MediaPipe, Plyer* — July 2025 – August 2025

- Developed a **computer vision**-based eye monitoring tool to assist individuals spending hours on screens to reduce eye strain, utilizing the **20-20-20 rule** using real-time facial landmark detection
- Implemented session timing logic to track continuous screen time only when eyes are actively detected, achieving accurate break detection with **±1 second** precision and resetting counters during user absence to avoid false positives
- Integrated **Plyer** to deliver system notifications after **20 minutes** of screen time, consuming less than **5% CPU usage**

AI-Powered Job Dashboard | *TypeScript, React, Java, Spring Boot, Python, FastAPI, AWS, PostgreSQL* — July 2025

- Developed a **full-stack AI-powered** job tracking application for effortless job tracking, featuring an intuitive **UI** and a custom **NLP** model to be able to parse key fields from raw job descriptions with **90% accuracy** on average
- Developed a **Java Spring Boot** backend integrating **AWS S3** for secure image storage, and **PostgreSQL** for user-specific data, while optimizing **RESTful API** response times to stay under **200ms**
- Implemented a document upload workflow using **AWS Textract** and **S3** to extract raw text from job postings, which was then processed by a custom **NLP model** integrated via **FastAPI** to automatically populate application fields

Multi-Threaded Chat Server | *C++, Winsock2, Linux* — May 2025 – June 2025

- Developed a **multi-threaded TCP** chat server in **modern C++17** using **Winsock2** and **socket programming**, allowing multiple Windows Terminal clients to exchange messages concurrently in real time with an average latency under **100ms**
- Implemented **thread synchronization** using mutexes to ensure consistent and safe message output across client threads, delivering clean, thread-safe output without overlap or corruption when handling up to **25** clients
- Added input validation and basic sanitization to prevent malformed messages from disrupting active client sessions

Smart Grade Tracker | *TypeScript, React, TailwindCSS, Python, FastAPI, PostgreSQL* — May 2025

- Developed a **full-stack** GPA tracking platform with over **100 active users**, allowing students to securely monitor their academic performance, simulate target outcomes, visualize progress trends and set personalized academic goals
- Built a **FastAPI** backend integrated with a relational **PostgreSQL** database, featuring optimized **RESTful APIs** to support real-time user-specific course tracking, grade simulation and secure user data handling with response times **under 150ms**
- Designed a responsive UI using **React** and **TailwindCSS**, delivering an intuitive user experience across various devices

Technical Skills

Languages: Python, JavaScript/TypeScript, HTML, CSS, C, C++, Java, SQL
Frameworks/Libraries: FastAPI, Flask, Spring Boot, Node, React, TailwindCSS, OpenCV
Data/Cloud: AWS, S3, Textract, DynamoDB, MongoDB, PostgreSQL, Firebase
Other: Docker, GitHub, Linux, Postman, MS Office (Excel, Outlook, Teams, Word, PowerBI)