

Mankaran Rooprai

226-972-6339 | ✉ | in | 🌐 | Portfolio

EDUCATION

Software Engineering (B.Eng) (GPA 3.87/4.00)

Expected Graduation: April 2026

McMaster University

Hamilton, ON

- **Publications:** Integration of Blockchain in Smart Systems 📄
- **Clubs:** GDSC Open Source Member 📄, Captain of Basketball Intramural Team
- **Awards:** Engineering Award of Excellence (\$3000), Dean's Honors List
- **Certifications/Hackathons:** AWS Certified Cloud Practitioner, DeepLearning.ai, Hack the North
- **Relevant Coursework:** Computer Architecture, Relational Databases, Software Concurrency

EXPERIENCE

Developer Intern

Sep. 2024 – Present

IBM Consulting

Toronto, ON

- Developed an LLM-based system utilizing Python, LangChain, and PostgreSQL to extract business summaries from over **12 million lines** of legacy COBOL code, thereby enhancing understanding for developers and analysts.
- Implemented a Python service featuring a tree data structure for COBOL program call graphs and an algorithm for recursively generating and propagating program summaries from leaf nodes, increasing content accuracy by **43%**.
- Architected a weighted full-text search engine on a PostgreSQL database, using tsvectors, tsqueries, and tsrank, leading to a **20%** improvement in query performance and **35%** increase in search accuracy.

Software Engineering Intern

May 2024 – Aug. 2024

Questrade

Toronto, ON

- Developed the complete backend microservice architecture for an internal tools application, enabling **400+ users** to delete Artifactory packages and perform Git actions, using Flask for requests and Slack Bolt API for integration.
- Led the creation of a role-based authentication service integrated with GitLab API, resulting in a **15% reduction** in unauthorized access attempts and ensuring that only authorized users could perform critical actions.
- Built a scalable tracking and logging system leveraging Google Sheets API to display the logs, offering visibility into user activity for **1000+ transactions** and aiding in the detection of unauthorized package deletions.

Software Engineering Intern

Jan. 2024 – Apr. 2024

Telus

Toronto, ON

- Developed a Python service for a 5G node monitoring system that compares severity alarm data and sends updated alerts to users every hour via a CRON job, reducing error detection time from **10 minutes to 10 seconds**.
- **Led product development** by transitioning on-prem Splunk data analytics to cloud-based solutions using GCP's Looker, and Pulumi for IaaS provisioning in BigQuery, enhancing dashboard development and user-friendliness.

Machine Learning and Blockchain Research Assistant 📄

Sep. 2023 – Apr. 2024

McMaster University

Hamilton, ON

- Published a SPIE paper on Python blockchain solutions for IoT, specifically real-time sensor data storage devices.
- Utilized **Matplotlib** for data visualization of network nodes, including CPU, RAM, and power usage, while employing scikit-learn's Isolation Forest algorithm to detect and address anomalies in 40% of the dataset.

Software Developer Intern

May 2023 – Aug. 2023

RBC Capital Markets

Montreal, QC

- Engineered a C# .NET Framework service to facilitate HTTP requests between a cloud-based financial reporting system—deployed using Docker and Kubernetes—and legacy Windows services, generating essential reports each morning for **100+ RBC traders** and serving as a proof of concept for transitioning other programs to the cloud.

PROJECTS

Heart Disease Predictor 🌐 | Python, scikit-learn, Matplotlib, NumPy, Pandas

- Developed a heart disease prediction model in Python with scikit-learn, achieving **88.52%** accuracy and using an 80-20 train-test split; preprocessed data with Pandas, extracting 14 predictive attributes.

Book Wishlist - 🌐 | React.js, Spring Boot, MySQL

- Built a full-stack CRUD webapp using Spring Boot for backend REST APIs, integrated with MySQL for persistent data storage, and React.js for a dynamic frontend, enabling users to manage their reading lists.

SKILLS

Languages: Java, Python, C#, JavaScript, HTML/CSS, SQL

Tools: Flask, .NET, React.js, Node.js, Spring Boot, PostgreSQL, MySQL, Git, Docker, Kubernetes, GCP, AWS, Linux