

MANSEHAJ SINGH

403-616-2829 | mansehaj.singh@uwaterloo.ca | [LinkedIn](#) | [GitHub](#)

SKILLS

Languages: Java, Python, Javascript, Typescript, C, C++, SQL, HTML, CSS

Technologies: AWS (S3, SQS), PostgreSQL, Cassandra, Elasticsearch, Redis, NiFi

Tools and Frameworks: Spring, React, Node, Quarkus, Docker, Kubernetes, JEE, Flask, Ansible, Playwright, Jest

EDUCATION

University of Waterloo

BASc. in Computer Engineering, **3.9 GPA**

Waterloo, ON

Sept 2021 – Present

EXPERIENCE

Software Engineer Intern

Jan 2024 – Apr 2024

Constant Contact (Innovation Lab Team)

Waltham, MA

- Delivered greenfield contact ingestion pipeline responsible for importing **60-70 million monthly email and SMS contacts**, resulting in **\$20k monthly revenue increase**
- Designed a storage scheme in **Amazon S3** for storage and cost effective expiry of stale data using object lifecycle configurations
- Implemented fuzzy matching mechanism to automate correction of incoming contact data by leveraging **Levenshtein Distance** algorithm
- Spearheaded development for the modernization of user flows in **React** to maximize customer throughput and track user behavior for analysis of **200k monthly active users**
- Developed producer-consumer microservices in **Java Spring** with intermediary communication layer powered by **Amazon SQS**

Software Engineer Intern

May 2023 – Aug 2023

Canon (Platform and Infrastructure Team)

Waterloo, ON

- Built **Python** cron service for facilitating cleanup, compaction, and normalization of healthcare imaging metadata in **Cassandra**, leading to a **30% reduction in table size**
- Prototyped **Elasticsearch** document allocation scheme using index lifecycle management rules to prioritize recency in search speed and distribute document load across a cluster of mixed efficiency nodes, **indexing metadata of 7 million medical images per year**
- Leveraged concurrency in Java to improve parallelism of ultra high resolution medical image data transfer over TCP, resulting in a maximum of **16x faster transfer time**
- Containerized services using **Docker** and **Kubernetes** to generate build machines and deployment machines as part of a new continuous integration pipeline that improved new feature iteration, testing, and team agility
- Wrote UI components in **Angular** with **Typescript** fitting user experience specifications to accompany new backend features

Software Engineer Intern

Sept 2022 – Dec 2022

Canon (Latest Product Release Team)

Waterloo, ON

- Created **ETL pipelines in NiFi** to normalize and validate incoming medical imaging metadata for storage and indexing to maximize searchability on **hundreds of attributes**
- Established system for **distributed synchronization** across nodes in an application cluster using Redis
- Improved query efficiency by leveraging a node-level **write-through L1 cache** to store subsets of image metadata by dynamically prioritizing caching the most searched and requested metadata fields at runtime
- Automated mass end to end testing upgrade effort using **Ansible** for deployment automation and **Playwright** to mimic user interaction, **reducing test effort by 3 weeks**

Full Stack Developer Coop

Jan 2022 – Apr 2022

Computer Science Computing Facility (Division of University of Waterloo)

Waterloo, ON

- Contributed to writing **REST** interface layer for a **database provisioning tool** to abstract **PostgreSQL** database creation, user setup, and granting permissions
- Designed and implemented user interfaces in **React** with **Material UI** component library to deliver interactive portal for database provisioning tool
- Spearheaded development of web application responsible for room and desk bookings for **9.2k+ faculty members** in **Python** coupled with the **Flask** framework