Mansehaj Singh

403-616-2829 | mansehaj.singh@uwaterloo.ca | mansehajsingh.com | 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 Sept 2021 – Apr 2026
BASc in Computer Engineering, ***3.9 GPA*** *Waterloo, ON*

Experience

Software Engineer Intern Jan 2024 – Apr 2024
Constant Contact (Innovation Lab Team) *Waltham, MA*

- Shipped revamp of contact ingestion pipeline in **Java Spring with Amazon SQS**, responsible for importing **70+ million monthly email and SMS contacts**, resulting in **$20k monthly revenue increase**
- Lead development of contacts ingestion user interface in **React** to maximize conversions and track usage characteristics of **200k monthly active users**
- Designed storage scheme in **Amazon S3** for cost effective expiry of stale data using object lifecycle rules to transition files to cheaper infrequent access storage
- Implemented fuzzy matching mechanism to automate correction of incoming contact data by leveraging **Levenshtein Distance** to compare text similarity

Software Engineer Intern May 2023 – Aug 2023
Canon (Platform and Infrastructure Team) *Waterloo, ON*

- Prototyped document allocation scheme in **Elasticsearch** to distribute document load across a cluster of mixed performance servers, **indexing metadata of 7 million medical images per year** for search
- Built **Python** cron service for cleanup and compaction of healthcare imaging metadata in **Cassandra**, leading to a reduction of **30+ million redundant healthcare records**
- Multithreaded Java process to parallelize medical image data transfer over TCP, resulting in a maximum of **16x faster transfer time**
- Containerized services using **Docker** and **Kubernetes** to generate build and deployment machines for new continuous integration pipeline, improving frequency of in-depth defect detection to daily instead of weekly

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 across **2 million medical images per year**
- Improved query speed by leveraging a node-level **write-through cache** to store image metadata, prioritizing most searched metadata fields for caching
- Established system for **distributed locking** across nodes in an application cluster using **Redis** to enforce mutual exclusion for image data partitioned across NFS servers
- 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 Intern Jan 2022 – Apr 2022
Computer Science Computing Facility (Division of University of Waterloo) *Waterloo, ON*

- Spearheaded development of web application responsible for room and desk bookings for **9.2k+ faculty members** in **Python** coupled with the **Flask** framework
- 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