

# Kanwarpal Brar

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## Education

### University of Waterloo

Waterloo, Ontario, Canada

Bachelor of Computer Science (BCS)

2020 - 2025

• **CGPA: 3.84/4.0**

• **Courses:** Data Structures & Algorithms, Operating Systems, Object-Oriented Programming, Distributed Systems, Concurrency, Databases

## Work Experience

### Carta

Kitchener, Ontario

Payments Software Engineering Co-op

Sept 2024 - Dec 2024

- Shipped critical fund impersonation controls within **2 weeks** of joining, preventing **\$5000+** in potential audit penalties using **Django + React**
- Implemented scalable **Microservices** on **AWS** using **Docker** and **Kubernetes**, ensuring robust and reliable fintech solutions
- Led multi-service banking integration expansion processing **\$5M+ monthly**, implementing international account workflows using **Python**, **gRPC**, **Protocol Buffers**, and **Domain Driven Design**
- Reduced network overhead **30%** by centralizing money movement permissions checking to a dedicated microservice

### University of Waterloo

Waterloo, Ontario

Distributed Systems Research Assistant

May 2024 - Aug 2024

- Conducted comprehensive benchmarking of Serverless frameworks to inform the design of a new high-performance Serverless platform
- Deployed & Optimized **Kubernetes** clusters achieving **200+** requests/second per node with **KNative** Serving
- Reduced cold-start latency **20%** through analysis and tuning of autoscaling, node configuration, and container runtime
- Authored a comprehensive technical report proposing architectural changes, improving resource utilization **15%**

### Carta

Kitchener, Ontario

Backend Software Engineering Co-op

Jan 2024 - April 2024

- Improved OCX report generation speed **10%** by implementing an O(n) complexity cell management system with **Apache POI + Java**
- Enhanced AI powered search accuracy **6%** through prompt engineering of report questions & use-cases
- Resolved **3000+** support tickets by streamlining Ownership Report access permissions in Carta Web's **Django** codebase
- Optimized ownership report query complexity in **Spring** framework, resulting in a **5%** decrease in user wait times

### Arctic Wolf Networks

Waterloo, Ontario

Software Developer Co-op

May 2023 - Aug 2023

- Reduced response times **25%** by developing a concurrent Prometheus metrics monitoring system in **Go** for an **Apache Kafka** Wrapper
- Developed a reflection-based Golang unit test verifier, identifying missing/broken metrics tests with **100%** accuracy
- Reduced lead times by designing a forward/backwards compatible Kafka Serialization system using SchemaVer and Avro

### Genesys Laboratories

Markham, Ontario

Full Stack Software Developer Co-op

Sept 2022 - Dec 2022

- Reduced hosting costs **5%** by transitioning scheduling API to serverless architecture using **Python**, **Flask**, and **Lambda**
- Shrunk codebase size **30%** by rewriting schedule statement management REST API in Python + Flask + RESTX

### Cloudspark Labs

Toronto, Ontario

Software Engineering Intern

Jan 2022 - Apr 2022

- Designed & Implemented scalable RESTful and Event-Driven microservices for web apps leveraging **Microsoft Azure**
- Led the development of Licensing, Notification, and Auth microservices for a start-up MVP, utilizing **TypeScript**, **Nest.JS**, CosmosDB, Dependency Injection, and Azure Service Bus

## Projects

### Location-Based Social Discovery App

[github.com](#)

Personal Project

2024

- Developed a geolocation-based event app using **Kotlin** and **Firebase**, simplifying event attendance
- Applied design patterns such as **MVVM**, Repository, and Singleton to create a modular, maintainable architecture

### Event-Driven Data Aggregation App

[github.com](#)

Personal Project

2024

- A mobile app using **React Native + Google Maps** to display & digest crowdsourced washroom data
- Architected and deployed a **TypeScript + Nest.js** backend to **AWS**, using event-sourcing pattern for washroom data

## Skills

**Programming:** C++, Go, Python, Java, Kotlin, TypeScript, JavaScript, C#, HTML + CSS, SQL, SASS, C

**Concepts:** Microservices, REST APIs, Unit Testing, Cloud Computing, CI/CD, Distributed Systems, Map Reduce, Networking

**Cloud & DevOps:** AWS, Azure, Kubernetes, Docker, Jenkins, CircleCI, GitHub Actions, Terraform, Datadog

**Frameworks & Tools:** Node.js, React, Vue.js, Flask, Django, Spring Boot, Express.js, GraphQL, gRPC, Hadoop, Spark

**Data & Infrastructure:** Kafka, PostgreSQL, MongoDB, Redis, Elasticsearch, Linux, Git, Avro, Protocol Buffers