

# 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

Waterloo, Ontario

Payments Software Engineering Co-op

Sept 2024 - Dec 2024

- Prevented **\$5000+** in potential regulatory penalties within first **2 weeks** by implementing financial compliance controls with **Django + React**
- Processed **\$5M+** monthly leading international banking integration expansion, leveraging **Python, gRPC**, and **Domain Driven Design**
- Engineered highly scalable **Microservices** on **AWS** with **Docker** and **Kubernetes**, enabling robust and fault-tolerant fintech operations
- Reduced network overhead **50%** by implementing centralized money movement **permissions** controls, enhancing security and performance
- Decreased team feature development time by **40%** through flexible runtime permission system, enabling rapid implementation of new controls

### University of Waterloo

Waterloo, Ontario

Distributed Systems Research Assistant

May 2024 - Aug 2024

- Elevated platform design through comprehensive benchmarking of **Serverless** frameworks, informing design of high-performance framework
- Achieved **200+** requests/second per node by deploying & optimizing **Kubernetes** clusters with **KNative** Serving, ensuring consistent loading
- Reduced cold-start latency **20%** through targeted autoscaling and node configuration tuning, increasing platform responsiveness
- Proposed architectural changes to improve resource utilization **15%**, detailed in a comprehensive technical research report

### Carta

Waterloo, Ontario

Backend Software Engineering Co-op

Jan 2024 - April 2024

- Boosted OCX report generation speed by **10%** using an O(n) complexity cell management system with **Apache POI + Java**, streamlining results
- Increased AI-powered search accuracy by **6%** via refined prompt engineering for report queries & real-world use-cases
- Cleared **3000+** support tickets by streamlining Ownership Report access permissions in **Django**, improving user satisfaction
- Reduced user wait times by **10%** through optimizing ownership report queries in **Spring**, enhancing system responsiveness

### Arctic Wolf Networks

Waterloo, Ontario

Software Developer Co-op

May 2023 - Aug 2023

- Decreased response times **25%** by implementing a concurrent **Go** monitoring system for **Prometheus** metrics on an **Apache Kafka** wrapper
- Achieved **100%** accuracy in identifying test gaps with a reflection-based **Golang** unit test verifier for an **Apache Kafka** wrapper
- Accelerated development by creating a forward/backward compatible Kafka Serialization system using **SchemaVer** and **Avro**

### Genesys Cloud Services

Markham, Ontario

Full Stack Software Developer Co-op

Sept 2022 - Dec 2022

- Reduced hosting costs **5%** by migrating a monolithic scheduling API to an end-to-end serverless architecture with **Python + Flask + Lambda**
- Shrank codebase size by **30%** and enhanced maintainability through a documented **Python + Flask + OpenAPI** service for scheduling

### Cloudspark Labs

Toronto, Ontario

Software Engineering Intern

Jan 2022 - Apr 2022

- Developed scalable **RESTful** and event-driven microservices for web applications using **Microsoft Azure**, meeting evolving user demands
- Led the creation of Licensing, Notification, and Auth microservices with **TypeScript, Nest.JS, CosmosDB**, and Azure Service Bus for an MVP

## Projects

### Location-Based Social Discovery App

[github.com](#)

Personal Project

2025

- Increased event attendance by building a geolocation-based app with **Kotlin** and **Firebase**, simplifying user discovery of local gatherings
- Integrated **MVVM**, Repository, and Singleton design patterns to ensure modular, maintainable architecture for future expansions

### Event-Driven Data Aggregation App

[github.com](#)

Personal Project

2025

- Engineered robust backend with **Go + Gin**, implementing **CQRS** and **Event Sourcing** for consistent real-time data updates
- Achieved **sub-200ms** query response times through concurrent processing with **Goroutines** and optimized **Event Sourcing** architecture
- Delivered responsive cross-platform experience with **React Native + Google Maps SDK**, enabling dynamic location-based features

## Skills

**Languages:** Python, Java, Go, TypeScript, JavaScript, C++, Kotlin, SQL, C#, C, SASS

**Backend & Systems:** Microservices, REST APIs, gRPC, GraphQL, Spring Boot, Django, Node.js, Express.js

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

**Data Systems:** PostgreSQL, MongoDB, Kafka, ZooKeeper, Redis, Elasticsearch, Hadoop, Spark, Protocol Buffers, Avro

**Architecture & Tools:** System Design, Distributed Systems, OAuth2.0, OpenAPI/Swagger, Unit Testing, Git, Linux