

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

- Prevented **\$5000+** in potential audit penalties within **2 weeks** of joining by delivering critical fund impersonation controls using **Django + React**
- Processed over **\$5M+** monthly by leading multi-service international banking integration expansions, leveraging **Python, gRPC, Protocol Buffers**, and **Domain Driven Design**
- Implemented highly scalable **Microservices** on **AWS** with **Docker** and **Kubernetes**, enabling robust and fault-tolerant fintech solutions
- Reduced network overhead **30%** by centralizing money movement permissions to a dedicated service, improving maintainability

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

Kitchener, 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 by **5%** by migrating a monolithic scheduling API to a serverless architecture with **Python, Flask**, and **Lambda**
- Shrank codebase size by **30%** via refactoring schedule statement management into a **Python + Flask + RESTX** service, boosting maintainability

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

2024

- 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

2024

- Streamlined user experience by crowdsourcing washroom data in a **React Native + Google Maps** mobile app, fostering real-time community updates
- Deployed a **TypeScript + Nest.js** backend to **AWS** using an event-sourcing pattern, ensuring high reliability and seamless data ingestion

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, ZooKeeper, PostgreSQL, MongoDB, Redis, Elasticsearch, Linux, Git, Avro, Protocol Buffers