KANWARPAL BRAR

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EDUCATION

University of Waterloo — Bachelor of Computer Science (BCS) (CGPA: 3.84/4.0)   2020 — 2025
Courses: Data Structures & Algorithms, Operating Systems, Object-Oriented Programming, Concurrency, Databases

WORK EXPERIENCE

Payments Software Engineering Co-op — Carta   Sept 2024 — Present
- Prevented **$5000+** in potential audit fines by designing and shipping a critical permissions feature using **Python, Django** and **React** within first 2 weeks
- Implemented scalable **Microservices** on **AWS** using **Docker** and **Kubernetes**, ensuring robust and reliable fintech solutions
- Collaborated with banking partners on payment integrations processing **$5M+** monthly, leveraging **Domain Driven Design**, **gRPC** and **Protocol Buffers**

Distributed Systems Research Assistant — **University of Waterloo**   May — 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%**

Backend Software Engineering Co-op — Carta   Jan — 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

Software Developer Co-op — **Arctic Wolf Networks**   May — 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**

Full Stack Software Developer Co-op — **Genesys Laboratories**   Sept — 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**

Software Engineering Intern — **Cloudspark Labs**   Jan — 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) — Android, Kotlin, Google Maps, Firebase
- 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) — React Native, Typescript, AWS, Nest.js, Google Maps
- 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, Networking

Technologies: AWS, Azure, Git, Node.js, React, Vue.js, Kubernetes, Docker, Kafka, Flask, Linux, NoSQL, Avro, Celery