Kanwarpal Brar

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EDUCATION

University of Waterloo — Bachelor of Computer Science (BCS) (CGPA: 3.8/4.0) 2020 — 2025

Key Courses: Data Structures & Algorithms, Operating Systems, Object-Oriented Programming, Concurrency, Databases

WORK EXPERIENCE

Backend Software Engineering Co-op — Carta Jan — April 2024

- Improved OCX report efficiency 10% by implementing a dynamic cell management system with Apache POI + Java, reducing code coupling and generation time
- Enhanced AI-powered report search accuracy 6% through prompt engineering of report questions & use-cases
- Streamlined ownership report access in Django by implementing secure direct access, resolving 3000+ support tickets
- 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

- Designed and developed a concurrent Prometheus metrics monitoring system in Go for an Apache Kafka Wrapper, reducing response times by 25%
- Devised a reflection-based Go Test verification algorithm, identifying missing/broken metrics tests with 100% accuracy
- Investigated and resolved a REST API bug across multiple AWS microservices caused by improper adherence to OpenAPI specification, increasing system reliability
- Designed a forwards/backwards compatible Kafka Serialization system using SchemaVer and Avro, reducing lead times

Full Stack Software Developer Co-op — Genesys Laboratories Sept — Dec 2022

- Transitioned employee scheduling API to serverless architecture using Python, Flask, and AWS Lambda, reducing hosting costs by 5%
- Rewrote schedule state management REST API in Python + Flask + RESTX, reducing codebase size by 30%
- Standardized REST API Unit/Integration tests in Python by designing fixtures, decreasing future development time

Software Engineering Intern — Cloudspark Labs (Startup) 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

DevOps Co-op — Pillar To Post May — Aug 2021

- Designed and Developed an Automated Web Software Regression Testing Framework in Selenium using Python and JavaScript, saving 100+ company hours by eliminating manual testing

PROJECTS

UWaterLoo Locator (link) — React Native | Typescript | AWS | Nest.js | Google Maps

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

Simple-Event-Bus (link) — C++ | Boost.ASIO | TCP Sockets | Concurrency

- Designed a concurrent C++ event bus/event logging platform similar to Apache Kafka
- Implemented direct TCP socket communication for low-latency event streaming and minimal overhead
- Utilized Active Object pattern and Async I/O to enhance throughput and scaling with administrator and worker threads

SKILLS

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

Knowledge: Microservices, REST APIs, Unit Testing, Cloud Computing, CI/CD, Distributed Systems, Networks

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