

# Andre Arcaina

[In andrearcaina](https://www.linkedin.com/in/andrearcaina) [G andrearcaina](https://github.com/andrearcaina) [B andrearcaina.vercel.app](https://andrearcaina.vercel.app)

## Technical Skills

**Languages:** Go, Python, Java, C/C++, JavaScript/TypeScript, SQL, GraphQL, Bash

**Frameworks/Libraries:** Chi, Gin, SQLC, Flask, FastAPI, Django, SQLAlchemy, PyQt, Spring Boot, React.js/Next.js

**Tools:** Git, Jenkins, Docker, Kubernetes, GCP, AWS, NATS, RabbitMQ, PostgreSQL, MongoDB, Redis, Elasticsearch

**Concepts:** Microservices, Distributed Systems, Event-Driven Architecture, REST APIs, gRPC, OpenAPI, ACID, CI/CD

## Work Experience

### Environment and Climate Change Canada (ECCC)

June 2025 – Present  
North York, ON

- Rebuilt 2+ legacy VB6 tools using Python and PyQt, integrating the team's standard logging framework to make debugging and auditing significantly faster.
- Secured database operations by implementing parameterized SQL queries with psycopg, preventing SQL injection attacks and improving performance for iceberg dataset validation.
- Analyzed, modified and documented a legacy C++ pipeline for satellite data (SAR), mapping out the decoding and calibration steps to guide the system's modernization.
- Modernized 8+ Java 1.8 modules to Jakarta EE 10, refactoring 5,000+ LOC and resolving 1,200+ compiler warnings.

### Undergraduate Science Society of TMU (USSTM)

Jan 2025 – Present  
Toronto, ON

- Engineered a contract-first backend in Go managing 3 PostgreSQL schemas, utilizing SQLC for type-safe data access and OpenAPI to enforce strict interface definitions across 32+ API endpoints.
- Developed 37+ unit, mock, and integration tests to ensure reliability in business logic, reducing manual testing.
- Implemented a low-latency, asynchronous distributed task queue using Redis and async to handle authentication and email notifications via AWS SES.

### DataKinetics

May 2024 – Aug 2024  
Ottawa, ON

#### Software Engineer Intern

- Developed Spring Boot APIs that automated COBOL-to-JSON conversions, improving data interoperability.
- Built front-end visualization features with DataTables and jQuery for uploaded copybooks.
- Designed comprehensive Postman API test suites to validate endpoints and streamline QA workflows.

## Projects

### Fafnir, Distributed Stock Engine | Go, Docker, K8s, NATS, PostgreSQL, Redis, Locust

GitHub

- Architected a microservices-based trading platform mirroring real-world financial infrastructure, utilizing Go, gRPC, and NATS for asynchronous event and high-performance inter-service communication.
- Validated horizontal scalability via load testing, sustaining 500 RPS across 1,000 concurrent users with 0% failure rate.
- Eliminated cache stampedes and reduced external Financial Modelling Prep API latency by 99% (790ms → 10ms) via request coalescing and tiered Redis caching strategies.
- Migrated infrastructure from Docker Compose to a 3-node Kubernetes cluster, configuring service discovery, load balancing, and namespace isolation to emulate a production-grade environment using Minikube.

### Pathfinder | Go, Concurrency (Goroutines/Channels), Cobra, Lipgloss

GitHub

- Engineered a high-performance static analysis CLI capable of scanning monorepos with 50,000+ files in <3 seconds.
- Implemented a concurrent worker pool architecture to maximize throughput, utilizing Go channels for non-blocking inter-process communication.
- Designed a dual-pipeline system to parallelize I/O-bound (file reading) and CPU-bound (parsing) tasks, achieving >250% CPU utilization on multi-core processors.

## Education

### Toronto Metropolitan University (TMU, formerly Ryerson University)

Sept 2022 – Present

Bachelor of Science (Honours), Computer Science (Co-op)

Toronto, ON

**Involvements:** Backend Lead @ PACS, Backend Engineer @ USSTM, Web Developer @ TMUCSA

**Relevant Coursework:** Data Structures, Algorithms, Operating Systems I, Database Systems I, Computer Networks I