

# Andre Arcaina

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## Technical Skills

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

**Tools & Infrastructure:** GCP, AWS, Docker, Kubernetes, NATS, RabbitMQ, Postgres, Redis, MongoDB

**Frameworks:** FastAPI, Django, React.js, Next.js, Spring Boot, gRPC

## Work Experience

### Environment and Climate Change Canada (ECCC)

June 2025 – Present

*Software Engineer Intern*

North York, ON

- Led a 3-person team to reverse-engineer a legacy C++ SAR decoding microservice, producing UML and architectural diagrams to document system design, reducing analysis and planning time for spatial processing modifications by 40%.
- Led a Python/PyQt replacement for legacy VB6 tooling, integrating structured logging to reduce debugging time for mission-critical audit workflows from hours to minutes.
- Optimized validation of multiple product datasets (50,000+ rows) by implementing parameterized SQL queries in applications, eliminating SQL injection risks and reducing overall query latency by 30%.
- Refactored 5,000+ LOC across 8 Java modules to Jakarta EE 10, resolving technical debt and reducing build-time warnings by 95% to improve long-term maintainability.

### Undergraduate Science Society of TMU (USSTM)

Jan 2025 – Present

*Backend Engineer*

Toronto, ON

- Engineered a contract-first backend API in Go powering platform services for the undergraduate science student body, leveraging SQLc for type safety and OpenAPI to enforce strict definitions across 32+ endpoints.
- Designed an asynchronous distributed task queue using Redis and Asynq to decouple email and authentication workloads, supporting platform-wide usage while maintaining sub-50ms response times.
- Developed 37+ unit/integration tests achieving 85%+ code coverage, preventing regressions in core business logic.

### DataKinetics

May 2024 – Aug 2024

*Software Engineer Intern*

Ottawa, ON

- Engineered Spring Boot REST APIs bridging legacy mainframe systems with modern web applications, automating COBOL-to-JSON transformations for 50+ enterprise clients.
- Built an interactive data inspection dashboard using jQuery and DataTables, enabling non-technical stakeholders to explore complex copybook structures without manual parsing.
- Designed comprehensive Postman test suites achieving 70%+ code coverage across all mainframe REST API systems.

## Projects

### Fafnir, Distributed Stock Engine

GitHub

- | Go, Docker, K8s, NATS, PostgreSQL, Redis, Locust
- Architected a microservices-based trading platform mirroring real-world financial infrastructure, utilizing Go, gRPC, and NATS for high-performance asynchronous inter-service communication, with Kubernetes for orchestration.
  - Validated horizontal scalability via load testing, sustaining 1,604 RPS across 5,000 concurrent users with 0% failure rate.
  - Reduced external API latency by 99% (790ms to 10ms) through request coalescing and tiered Redis caching, improving system responsiveness and reliability under high concurrent load.

### Pathfinder, Codebase (LOC) Analysis CLI

GitHub | Package

- | Go, Concurrency, Cobra
- Achieved sub-3-second static analysis on 50,000+ file monorepos, enabling near-instant local developer feedback by building a high-throughput CLI with a lock-free producer-consumer pipeline.
  - Leveraged parallel worker pools to achieve >250% CPU utilization on multi-core systems, maximizing throughput for large-scale codebase analysis.

## Education

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

Sept 2022 – Present

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

Toronto, ON

**Relevant Coursework:** Data Structures and Algorithms, Distributed Systems and Networks, Operating Systems, Database Systems, Software Engineering, UNIX, Object Oriented Programming, Artificial Intelligence, Machine Learning