Andre Arcaina

andrearcaina andrearcaina andrearcaina.ca

Technical Skills

Languages: Go, Python, Java, C, C++, Rust, JavaScript, TypeScript, SQL, GraphQL, Bash
Tools & Infrastructure: GCP, AWS, Docker, Kubernetes, NATS, RabbitMQ, Postgres, Redis, BadgerDB, GitHub Actions
Frameworks: FastAPI, Django, Spring Boot, React.js, Next.js, gRPC

Work Experience

Environment and Climate Change Canada (ECCC) June 2025 – Present
Software Engineer Intern *North York, ON*

- Architected a Go service for E2E and regression testing of mission-critical satellite data pipelines, implementing REST, SSE control, and real-time log streaming, drastically reducing bug triage time by 80%.
- Modernized a mission-critical meteorological portal by migrating 8 enterprise Java components to Java 17 and Jakarta EE 10, ensuring the high-availability delivery of real-time weather data to power national maritime and Coast Guard operations.
- Eliminated decades of technical debt by replacing a legacy VB6 application with a Python/PyQt dashboard, migrating the data layer to PostgreSQL to securely process datasets exceeding 50,000 rows.
- Reverse-engineered an undocumented legacy C++ and Java system, authoring foundational architecture and UML diagrams to accelerate future feature development for a 3-person team.

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.
- Built S3-based image storage with presigned URLs to support secure, horizontally scalable before and after item image uploads.
- Implemented a Redis-backed Asynq worker to asynchronously process queued email jobs and deliver notifications via AWS SES.
- 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*

- Developed a Spring Boot middleware service and jQuery dashboard, utilizing an external Java library to automate COBOL-to-JSON parsing and eliminate manual data inspection for the R&D team.
- Presented the finalized tool to 12 R&D stakeholders, successfully demonstrating the new automated data-inspection workflow.
- Designed and executed 72 comprehensive Postman test cases for a core mainframe REST API, rigorously validating JSON responses, edge cases, and data integrity across 3 distinct IBM Db2 database tables.

Projects

Fafnir, Distributed Paper Trading Platform | Go, gRPC, Docker, Kubernetes, NATS, PostgreSQL, Redis GitHub

- Architected a distributed trading simulation in Go using GraphQL, gRPC and NATS JetStream, coordinating 8+ microservices to sustain 1,600+ RPS across 5,000 concurrent users with 0% failure (P95: 42ms, Avg: 7ms).
- Orchestrated production-grade networking using Kubernetes and Helm, integrating a full observability stack with Prometheus, Loki, and Grafana, enabling real-time visualization of RPC latency, error rates, and distributed logs across all services.
- Improved market data latency 98% (800ms to 10ms) through request coalescing and Redis tiered caching.

Hyperion, Distributed Key-Value Database | Go, Raft, gRPC, BadgerDB GitHub

- Developed a distributed key-value database optimized for high-performance persistent storage, exposing both REST and gRPC endpoints for high-throughput inter-service communication.
- Implemented the Raft consensus algorithm to manage distributed node state, ensuring strict data consistency, reliable log replication, and automatic failover across the cluster.

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, Database Systems, Computer Networks, Computer Security, Operating Systems, Software Engineering, Software Project Management, UNIX, Object Oriented Programming