

# Andre Arcaina

 andrearcaina

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 andrearcaina.vercel.app

## Technical Skills

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

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

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

## Work Experience

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### Environment and Climate Change Canada (ECCC)

*Software Engineer Intern*

June 2025 – Present

North York, ON

- Prototyped a Go-based control plane service to automate satellite workflow orchestration, implementing an SSE observability stream to track real-time file states and eliminate manual log searches, reducing debugging time across multiple components.
- Led a 3-person team to reverse-engineer a legacy C++ component, producing UML and architectural diagrams to document system design, reducing analysis and planning time for spatial processing modifications by 30%.
- Led a Python/PyQt replacement of legacy VB6 tooling for internal research use, implementing structured logging integrated with Graylog to improve log traceability and debugging during development and testing.
- 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 15%.

### Undergraduate Science Society of TMU (USSTM)

*Backend Engineer*

Jan 2025 – Present

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

*Software Engineer Intern*

May 2024 – Aug 2024

Ottawa, ON

- Engineered Spring Boot REST APIs bridging legacy mainframe systems with modern web applications, automating COBOL-to-JSON transformations for 10+ 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

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### 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.
- Reduced external market data latency by 98% (~800ms to ~10ms) by implementing request coalescing and tiered Redis caching to handle high-frequency data spikes.

### Pathfinder, Codebase Analysis CLI & SDK | Go, Cobra, Bubble Tea, Concurrency

GitHub | Package

- Engineered a multi-threaded static analysis CLI capable of concurrently scanning 46,000+ file monorepos in under 0.7 seconds, achieving >600% CPU utilization on multi-core CPUs.
- Decoupled the core analysis logic into a reusable Go SDK, enabling developers to import the package and programmatically integrate code metrics into custom scripts.

## Education

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### 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