# Andre Arcaina

dtandre331@gmail.com +1 (647) 632-0808 andrearcaina andrearcaina andrearcaina.vercel.app

## Technical Skills

**Languages:** Go, Python, Java, C/C++, JavaScript/TypeScript, SQL, GraphQL, Bash
**Frameworks/Libraries:** Flask, FastAPI, Django, SQLAlchemy, Spring Boot, React.js, Next.js
**Tools:** Git, Jenkins, Docker, Kubernetes, NATS, GCP, Vercel, PostgreSQL, MySQL, MongoDB, Redis, Elasticsearch
**Concepts:** Microservices, EDA, REST APIs, gRPC, DevOps, Cloud Computing, System Design, Testing, Agile/Scrum

## Work Experience

**Environment and Climate Change Canada (ECCC)** June 2025 – Present
*Software Engineer Intern* *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 psycopg2, 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
*Backend API Engineer* *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+ endpoints.
- Developed 37+ unit, mock integration, and end-to-end tests to ensure reliability and correctness of business logic.
- Optimized database performance by designing normalized schemas and implementing efficient indexing strategies, ensuring low-latency retrieval across complex relational datasets.

**DataKinetics** May 2024 – Aug 2024
*Software Engineer Intern* *Ottawa, ON*

- 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 | Go, PostgreSQL, Redis, Docker, Kubernetes, NATS, Prometheus, Grafana, Elasticsearch, Locust GitHub

- Designed and implemented a distributed stock-trading simulation platform using Go microservices with REST/gRPC inter-service communication, NATS for asynchronous messaging, and a GraphQL API gateway for unified requests.
- Validated horizontal scalability by load testing 1,000 concurrent users and sustaining 500 requests per second with zero failures using Locust.
- Accelerated FMP API market data retrieval through Redis caching and request coalescing, reducing external API latency from 790ms to 10ms (99% reduction) and preventing cache stampede under high concurrency.
- 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 60k+ files in seconds, utilizing a concurrent worker pool architecture to maximize throughput.
- Designed a single-pass, dual-pipeline system to parallelize I/O-bound tasks (line counting) and CPU-bound tasks (dependency parsing), achieving greater than 200% 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