Andre Arcaina

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Technical Skills

Languages: Go, Python, Java, C/C++, JavaScript/TypeScript, SQL, GraphQL, Bash
Frameworks/Libraries: Chi, Gin, SQLc, FastAPI, Django, SQLAlchemy, Psycopg, 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
Software Engineer Intern *North York, ON*

- Mapped a low-level design of a C++ microservice for SAR data decoding, analyzing the internal control and data flow from object initialization to satellite-specific logic (RCM, RS2, S1) to blueprint future modifications and migrations.
- 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.
- 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 Engineer *Toronto, ON*

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

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, 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 $\rightarrow$ 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 | Package

- Engineered a static analysis CLI capable of concurrently scanning 50,000+ file monorepos in $<$3 seconds, achieving $>$250% CPU utilization on multi-core CPUs.
- Architected a lock-free Producer-Consumer pipeline using buffered channels to synchronize I/O and CPU tasks, enforcing idiomatic Go design patterns.
- Designed a modular package API allowing developers to programmatically integrate it in their own codebase.

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