Aleksandr Gyumushyan

647-655-4345 | alex.gyumushyan@gmail.com | LinkedIn | Github | Personal Website

Education

Toronto Metropolitan University Toronto, ON
Bachelor of Science in Computer Science *Sep. 2020 – May 2025*

Experience

Junior Software Developer Sep. 2025 – Present
LDA Technologies *Mississauga, ON*

- Engineered a concurrent, fault-tolerant Go library to interface with hardware server boards over serial connections, utilizing Protocol Buffers and code generation to automate future hardware API integrations
- Built and deployed a rest API over multiple instances of the above-mentioned go api, as well as a user facing CLI with dynamic, available board-based autocomplete
- Synchronized an industrial engraving laser with conveyor hardware and LDA's ERP systems via REST, orchestrating automated, highly reliable PCB engraving based on dynamic IDs

Backend Developer Intern May 2023 – Aug. 2023
Geotab *Oakville, ON*

- Achieved a substantial reduction in Auth API requests (50%+) by re-engineering Geotab's Gateway auth token caching, and using refresh tokens. Stored refresh tokens in a Redis cache and created a new workflow of continuous retrieval and refresh of said tokens
- Deployed a secure, production-grade Redis cache within a microservices environment by leveraging Helm Charts and updating core Kubernetes and Terraform configurations.
- Enhanced developer testing workflows by modernizing the Docker Compose environment with an updated mock API, Redis cache, and profiler, enabling faster feedback cycles and improved debugging of cache performance

Software Developer Intern May 2022 – Apr. 2023
Geotab *Oakville, ON*

- Designed and developed a CLI based internal data transformation tool, written in Python, that converts vehicle CANBus data from a DB into either a proprietary C-macro based, or a serialized Protobuf data structures, resulting in an over 95% speedup in vehicle signal upload to a Godevice
- Improved code reliability by designing a comprehensive test suite with over 30 unit and system tests, leveraging mocks, stubs, CI pipelines, static analysis tools and synthetic data to ensure high code coverage and reliability
- Engineered a comprehensive logging system to log tool usage through over 20 parameters to a GCP Big Query table, enhancing error logging, compliance and data accessibility

Projects

Ultra-fast 1 Billion Row Challenge | **Repo** | **Detailed Writeup** | *Zig, Samply* Jan. 2026

- Engineered a high-performance data ingestion engine in Zig to parse a 15GB dataset (1 billion records), achieving a single-core processing time of 9.3 seconds
- Slashed execution time by over 1,000% by bypassing standard I/O with zero-copy memory mapping and designing a tuned hash table with linear probing
- Optimized text-parsing throughput by replacing standard loops with SWAR (SIMD Within A Register) bitwise operations, utilizing CPU profiling to precisely implement and benchmark this algorithm

Distributed Key Value Store | **Repo** | *Go, Docker, Kubernetes, Minikube, Raft, Gossip* Aug. 2025

- Engineered a consensus-based distributed key-value store with fault tolerance and dynamic cluster resizing via a gossip-based membership protocol, deployed locally with Kubernetes
- Implemented Hashicorp's Memberlist for gossip-driven node discovery and Raft for consensus, log replication and leader election, enabling reliable log consensus and automatic failover across nodes in dynamic clusters
- Deployed and documented a local cluster through Kubernetes and Minikube with a StatefulSet, a ConfigMap, a headless local network and publicly exposed HTTP ports, creating a reproducible demo environment

Technical Skills

Languages: Go, Python, Java, C#, TypeScript, JavaScript, Zig
Databases and Infrastructure: MongoDB, Redis, RabbitMQ, Kubernetes, Docker, gRPC, Protobuf, Terraform
Developer Tools and Testing: Git, Jira, Linux, Pytest, Go testing framework, Pydantic, Flake8