

# Andrew Guo

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## Education

### Carleton University

Honours Bachelor of Computer Science

May 2025

Ottawa, Ontario

- Scotiabank International Exchange Award, Dean's Honour List
- GPA: 4.0/4.0 (A+)
- Relevant Coursework: Data Structures & Algorithms, Computer Vision, Applied Cryptography, Information Systems

## Skills

**Languages:** Go, Python, Terraform HCL, JavaScript, Rust, C, C++, Scala, SQL, GraphQL

**Frameworks:** React, Django, PyTorch, Tokio, Apache Spark

**Tools:** Docker, Kubernetes (K8s), Nginx, Caddy, Tailscale, SVN, Git, Jira, Selenium, Databricks

**Knowledge:** Google Cloud Platform (GCP), Microsoft Azure, DNS, NAT, TCP/IP, UDP/QUIC, a11y

## Experience

### Junior Data Scientist

May 2024 – Aug 2024

Public Health Agency of Canada

- Developed a cloud-native data pipeline to generate and store vector embeddings from academic publications for use in large language models (LLMs) that assist researchers in epidemiological literature reviews
- Processed large-scale datasets using Apache Spark by writing optimized Databricks notebooks in Python
- Benchmarked the performance of multiple LLMs across GCP and Azure environments to guide model selection and cloud deployment strategy

### Junior Full Stack Developer

May 2023 – Apr 2024

Public Health Agency of Canada

- Implemented a robust CI/CD pipeline with Terraform that connected GCP infrastructure with GitHub to automate deployment of highly available workloads inside Google Kubernetes Engine (GKE) for end users
- Enhanced performance of existing GraphQL API stack to improve usability for downstream health data consumers
- Delivered production-grade features in Python by leveraging Django's authentication, ORM, and form handling to meet critical public health requirements

### Software Developer

May 2022 – Aug 2022

Ross Video Ltd.

- Programmed driver code in C to maintain mission-critical hardware used in live broadcasting environments
- Migrated legacy production code to support long-term releases used by customers
- Followed Agile software development practices to implement new features that met customer requirements

## Projects

### Legiter | Go

- Created a CLI tool using an open-source post-quantum cryptography library to demonstrate practical post-quantum digital signature schemes for embedded systems
- Automated multi-platform binary builds and release workflows via GitHub Actions
- Leveraged Go standard library to conduct in-depth benchmarking and memory profiling of both traditional and post-quantum digital signature implementations

### Botanic Buddy | Swift, Python, PyTorch

- Trained a fine-tuned YOLOv8 object detection model in PyTorch with GPU acceleration to perform inference on mobile devices
- Curated a custom-labeled dataset using modern image segmentation techniques to enhance model accuracy in real-time object classification
- Designed and implemented a responsive SwiftUI interface to ensure seamless usability across iOS devices

### Search Engine | Typescript, React, Rust, MongoDB

- Built a high-performance RESTful API in Rust that fulfilled requests more than 10x faster end-to-end than comparable engines
- Integrated MongoDB Atlas full-text search by indexing data gathered from a custom web crawler
- Developed a React webpage to facilitate client searches using optimized search queries and parameters