

# Andrew Guo

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## Education

### Carleton University

Ottawa, Ontario

Honours Bachelor of Computer Science

June 2025

- Scotiabank International Exchange Award, University Medal in the Faculty of Science, Dean's Honour List
- CGPA: 12.0/12.0 (A+)
- Relevant Coursework: Data Structures & Algorithms, Operating Systems, Applied Cryptography, Information Systems

## Experience

### Junior Data Scientist

Ottawa, Ontario

Public Health Agency of Canada

May 2024 – Aug 2024

- Developed a cloud-native data pipeline to store embeddings of academic publications for use with large language models (LLMs) that assist researchers in epidemiological literature reviews
- Benchmarked LLM performance on GCP and Azure to inform cloud deployment strategy
- Created optimized Databricks notebooks in Python to ingest public and private datasets with Apache Spark

### Junior Full Stack Developer

Ottawa, Ontario

Public Health Agency of Canada

May 2023 – Apr 2024

- Architected CI/CD pipeline with GCP, GitHub, and Docker to automate deployment of highly available workloads in Kubernetes for production
- Configured DNS zones, VPC networking, container registries, and cross-regional managed databases across multiple GCP projects
- Implemented infrastructure-as-code with Terraform to manage cloud services across multiple staging environments
- Created Docker images and Kubernetes manifests as part of automated deployment pipelines
- Delivered features with Django's authentication, ORM, and form handling to meet critical public health requirements

### Software Developer

Ottawa, Ontario

Ross Video Ltd.

May 2022 – Aug 2022

- Wrote 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 a post-quantum cryptography library to showcase practical post-quantum digital signature schemes on 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 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
- Implemented an intuitive 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
- Designed a responsive React webpage to facilitate client searches using optimized search queries and parameters

## Skills

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

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

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

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