

# Andrew Guo

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## EDUCATION

### Carleton University

Sep. 2020 – May 2025

*Honours Bachelor of Computer Science*

*Ottawa, Ontario*

- Dean's Honour List, Jamie Corbet Memorial Award, Scotiabank International Exchange Award
- 12.0/12.0 CGPA (A+)
- *Relevant Coursework: Databases, Operating Systems, Computer Vision, Distributed Processing, IT Infrastructure*

## SKILLS

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

**Frameworks:** React, Django, Tokio

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

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

## EXPERIENCE

### Junior Data Scientist

May 2024 – Aug. 2024

*Public Health Agency of Canada*

*Ottawa, Ontario*

- Created a data pipeline to store academic publications and generate vector embeddings for Large Language Models (LLMs) to assist researchers with 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 inform cloud deployment strategy

### Junior Full Stack Developer

May 2023 – Apr. 2024

*Public Health Agency of Canada*

*Ottawa, Ontario*

- Developed 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 GraphQL API stack to improve usability for downstream health data consumers
- Delivered production-grade features in Python by leveraging Django's authentication, ORM, and forms to meet critical public health requirements

### Software Developer

May 2022 – Aug. 2022

*Ross Video Ltd.*

*Ottawa, Ontario*

- Developed low-level driver code in C for mission-critical hardware used in broadcast production environments
- Migrated legacy production code across long-term support releases used by customers
- Followed Agile software development practices to implement new features and meet customer needs

## 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 features and 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