Andrew Guo

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Education

Carleton University   Ottawa, Ontario
Honours Bachelor of Computer Science   May 2025
- University Medal in the Faculty of Science, Scotiabank International Exchange Award, Dean's Honour List
- CGPA: 12.0/12.0 (A+)
- Relevant Coursework: Data Structures & Algorithms, Computer Vision, 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 vector embeddings of academic publications for use in large language models (LLMs) that assist researchers in epidemiological literature reviews
- Benchmarked the performance of multiple LLMs across GCP and Azure environments to guide model selection and cloud deployment strategy
- Ingested large-scale datasets using Apache Spark by writing optimized Databricks notebooks in Python

Junior Full Stack Developer   Ottawa, Ontario
Public Health Agency of Canada   May 2023 — Apr 2024
- Implemented a robust CI/CD pipeline with GCP infrastructure and GitHub to automate deployment of highly available workloads inside Google Kubernetes Engine (GKE) for end users
- Delivered production-grade features featuring Django's authentication, ORM, and form handling to meet critical public health requirements
- Managed Kubernetes manifests and cloud service configurations with Terraform

Software Developer   Ottawa, Ontario
Ross Video Ltd.   May 2022 — Aug 2022
- 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 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, DNS, NAT, TCP/IP, UDP/QUIC, a11y