Andrew Pham

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Education

University of Ottawa — Ottawa, ON
Honours Bachelor of Science in Computer Science — *3.8 GPA | Expected Apr. 2026*

Technical Skills

Languages: Python, Go, C++, JavaScript, TypeScript, Java, SQL, HTML/CSS
Technologies: React, Vue.js, Node.js, FastAPI, Flask, Spring, Express, PostgreSQL, MySQL, MongoDB, Apache Kafka
Developer Tools: Docker, Amazon Web Services (AWS), JIRA, Git, GitHub, GitLab, Jupyter, VS Code, IntelliJ, Linux

Experience

Tesla — Jan. 2025 - Apr. 2025
Software Engineer Intern — *Palo Alto, CA*
- Incoming software engineering intern on the vehicle software team

Nokia — Sep. 2024 – Dec. 2024
Embedded C++ Software Developer Intern — *Ottawa, ON*
- Designed and implemented an encoding technique leveraging C++ and Protobuf to reduce log size by **over 30%**, allowing more vital crash data to be preserved in a limited sized log buffer
- Developed new features for a router management interface using C++, allowing users to apply config changes without needing to follow a strict order of operations
- Reduced Python file dependency tracking script runtime by **95%** by caching results of recursive function calls and reducing the amount of read/writes to disk, saving developers **over 40 seconds per build** on average
- Generated thousands of lines of C code using C++ based on config files, making the codebase easier to maintain/extend

Royal Canadian Mounted Police — May 2024 – Aug. 2024
Software Developer Intern — *Ottawa, ON*
- Created a new ingestion pipeline for a Flask data visualization service, processing and inserting data from multiple excel sheets to a SQLite database, decreasing ingestion time by over **90%** by batching updates in transactions
- Architected a FastAPI Python microservice providing a simple interface for categorizing media files using multiple Tensorflow ML models, and deployed it using Docker
- Implemented multi-threaded inference on the ML microservice, improving total runtime by **35%** over sequential inference

Nokia — Jan. 2024 – Apr. 2024
Test Automation Intern — *Ottawa, ON*
- Developed a test automation program to create, send and receive mock traffic with **15+** protocols, and collect metrics on Linux devices to test fixed networks, controlled via a REST API built with Python and FastAPI
- Improved error handling and messaging for API endpoints, making it easier to use and identify erroneous use
- Created a Bash script automating program installation on Ubuntu, decreasing install time by **over 80%**

Recollective Inc. — May 2023 – Sep. 2023
Software Developer Intern — *Ottawa, ON*
- Created a new internal tool for testing LLM Prompts in TypeScript and Vue.js for rapidly prototyping AI features
- Developed API endpoints and DTOs with Java Spring, connecting the main application to an AI microservice
- Captured and logged AI request metadata in a FastAPI Python microservice and forwarded results to AWS OpenSearch with Fluentd for validation and monitoring
- Implemented validation to the Spring controllers to support a new limited-feature license type

Recollective Inc. — May 2022 – Sep. 2022
Software Developer Intern — *Ottawa, ON*
- Implemented new front-end form input components using JSP, Vue.js, JavaScript, jQuery, and HTML/CSS
- Developed new back-end features and API endpoints using Java, Spring and MySQL

Projects

Distributed Web Crawler | *Go, Apache Kafka, MongoDB, AWS S3*
- Architected and built a scalable, distributed web crawler using **Go, Apache Kafka, MongoDB**, and **AWS S3**
- Developed separate services in **Go** for fetching site data to store HTML content in **Amazon Web Services (AWS) S3** and collecting site metadata, and processing site data to extract text and other linked pages, allowing for independent scaling
- Utilized **Apache Kafka** as a resilient, distributed message queue to coordinate processing between the services

JustVent - Second in Best Use of Cloud Technology @ Hack the Hill 2 | *Python, Go, React, MongoDB, PostgreSQL, AWS*
- Created an app allowing users to journal and track their emotions over time using an NLP model run with **PyTorch**
- Developed the backend supporting main functionality in **Python & FastAPI**, with **MongoDB** as the primary database
- Implemented a semantic search microservice with **Go** on **AWS Lambda**, storing vector embeddings on **PostgreSQL**
- Implemented a responsive, user-friendly frontend in **React.js** with the Mantine component library
- Designed application architecture and managed deployment on **Amazon Web Services**