

# Andrew Pham

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## EDUCATION

### University of Ottawa

Honours Bachelor of Science in Computer Science

Ottawa, ON

Sep. 2021 – Apr. 2026 | 3.8 GPA

## EXPERIENCE

### Software Engineer Intern

Jan. 2025 - Apr. 2025

*Tesla*

*Palo Alto, CA*

- Incoming software engineering intern on the vehicle software team

### Embedded C++ Software Developer

Sep. 2024 – Present

*Nokia*

*Ottawa, ON*

- 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

### IT Software Solutions Developer

May 2024 – Aug. 2024

*Royal Canadian Mounted Police*

*Ottawa, ON*

- Created a new ingestion pipeline for a **Flask** data visualization service, processing and inserting 5000 rows per second 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 using **Docker**
- Implemented multi-threaded inference, improving total runtime by **35%** over sequential inference

### Test Automation Co-op/Intern

Jan. 2024 – Apr. 2024

*Nokia*

*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**, accelerating install time by **over 80%**

### Software Developer Co-op

May 2023 – Sep. 2023

*Recollective Inc.*

*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**, 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 Fluent for validation and monitoring
- Implemented validation to the **Spring** controllers to support a new limited-feature license, increasing sales by 10%

### Software Developer Co-op

May 2022 – Sep. 2022

*Recollective Inc.*

*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**
- Completed various QA tasks including creation of test cases and end-to-end testing

## 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**
- Designed application architecture and managed deployment on **Amazon Web Services**

### Sugar Shack Monitor | *ESP32, C, Node.js, Express.js*

- Developed a **C** program for an ESP32 micro controller to detect when a barrel filled up using a moisture sensor
- Created a **Node.js/Express** server to connect to the ESP32 via websockets, allowing for the threshold to be updated, and notifying the user via text message using a GSM module when the threshold is passed

## TECHNICAL SKILLS

**Languages:** Python, Go, JavaScript/TypeScript, Java, SQL, HTML/CSS, C++

**Technologies:** React, Vue.js, Node.js, FastAPI, Flask, Spring, Express, PostgreSQL, MySQL, MongoDB, Kafka

**Developer Tools:** Git, Docker, Amazon Web Services (AWS), JIRA, GitHub, GitLab, Jupyter, VS Code, IntelliJ, Linux