

# Alexander Carvalho

Student & Software Developer with industry experience building, testing, and deploying user-focused applications. Interested in concurrent systems and finance technology; passionate about collaborative engineering and simplicity.

## EDUCATION

### Bachelor of Computer Science (co-op) — BCS

Expected Graduation: April 2025

Sheridan College | GPA: 3.76

Relevant Coursework Data Structures & Algorithms, C/C++ Program Design, Distributed & Parallel Computing  
Extra-curricular President of the Sheridan [Computer Science Club](#), Student mentor for [Hackville](#) '23/'24

## PROFESSIONAL EXPERIENCE

### Geotab — Software Developer Intern

Sep 2023 — Dec 2023

Full stack web development in the Citizens Insights codebase

- Facilitated integration and testing of web mapping features within various container registry pipelines
- Reduced API response times by 50% with parallel task processing for vehicle location and route retrieval
- Optimized client-side data fetching during geospatial queries with web workers; improved site initialization performance by 70% (4800 ms → 1400 ms) and decreased bounce rates by 25%
- Utilized Jest to build unit tests for numerous UI components exceeding 90% repository-wide coverage
- Learned about asynchronous web applications (TypeScript, RxJS, Redux, Multithreading, Event Handling)

### Ansys — Software Engineer Intern

May 2023 — Aug 2023

Computational Fluid Dynamics R&D Engineering in the Ansys monorepo

- Supported implementation, testing, and release of various simulation-based features across 5 Ansys repositories
- Accelerated microservice deployments by 30% through refactoring batch scripts, Dockerfiles, and CI workflows
- Spearheaded the development and launch of [ansys/pyansys-units](#) (400+ weekly downloads) a Python package for units, unit systems, and unit conversions; enhanced community adoption by 15%
- Achieved a 40% reduction in setup and teardown overhead by integrating Pytest fixtures within module tests
- Learned about trunk-based development (Python, Pytest, Docker, CI/CD, GitHub Actions)

## OTHER EXPERIENCE

### Sheridan CMI Lab — Undergraduate Research Developer

Jan 2023 — Aug 2023

Machine learning analysis of road surface conditions

- Collaborated on [LYNX](#) Computer Vision, analyzing road conditions via dashcam using Python, OpenCV, and YOLOv5
- Built an interface to demo road debris detection using TypeScript, SvelteKit, and Express

### Amazon — L1 Operations

Feb 2020 — Jan 2023

Operations at YYZ2

- Led a team of 25 associates, implementing optimal performance strategies to achieve daily shipment targets

## SKILLS

Programming Languages	Python, JavaScript, TypeScript, Ruby, C, C++, $\text{\LaTeX}$
Frameworks & Tools	React, Next, Node, Express, GraphQL, Jest, Rails, FastAPI, Pytest
Datastores	AWS (S3, RDS, DynamoDB), MySQL, MongoDB, Hadoop (HDFS, MapReduce)
DevOps	Docker, Git, GitHub, AWS (EC2, Lambda, VPC), CI/CD, Bash

## PROJECTS & OPEN-SOURCE

### Wealthsimple / llm-gateway

[github.com/wealthsimple/llm-gateway](https://github.com/wealthsimple/llm-gateway)

Python, FastAPI, TypeScript, React, Docker, OpenAI

- Contributed router-based [exception handlers](#) to propagate API errors within the backend and UI intuitively

### Tranche Commerce

[github.com/alvxck/tranche-commerce](https://github.com/alvxck/tranche-commerce)

TypeScript, React, Node, GraphQL, Express, MongoDB, Docker, HTML, TailwindCSS

- Developed a full stack finance website to buy, sell, and trade tranches; utilized **GraphQL** to streamline API queries

### Stock Forecast

[github.com/alvxck/stock-forecast](https://github.com/alvxck/stock-forecast)

Python, FastAPI, Keras, NumPy, Pandas, Pytest, yFinance

- Built a REST API for stock price estimates; integrated a process **queue** to ensure concurrent request integrity