Alexander Carvalho

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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 Sheridan Computer Science Club

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 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 / USARs Data Processing — 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++, 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
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
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
Python, FastAPI, Keras, NumPy, Pandas, Pytest, yFinance

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