

Simon Marcotte

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EDUCATION

University of Alberta

BSc. Computer Engineering Co-op

Expected Graduation: May 2026

GPA: 3.4 / 4.0

WORK EXPERIENCE

Robinhood

Backend Software Engineer Intern

Incoming Fall 2025

Toronto, ON

- Selected to join the Payment Platform to monitor Fraud Operations using Golang, Python, and Django.

Amazon Web Services (AWS)

Software Development Engineer Intern

May 2025 – August 2025

Vancouver, BC

- Designing an SSH key system in Java for Oracle DB @ AWS to connect customers to VM cluster hardware.
- Reduced response latency by 40%, leveraging singleton client and dagger injection for S3 object retrieval.
- Expanded customer-facing SSH key options on AWS console with React/TypeScript, working with UX team.
- Hosted design reviews with senior engineers covering requirements, customer experience and architecture.

General Fusion

Software Engineer Intern

January 2024 – August 2024

Vancouver, BC

- Designed a Python-based data acquisition system for 20+ fusion reactor diagnostics using Docker.
- Visualized 98.9% signal processing accuracy with matplotlib, achieving 9x speedup in Python over MATLAB.
- Enabled real-time server monitoring by streaming Docker logs to Elasticsearch with Fluentd and Kibana.
- Deployed a Flask REST API, tested with Pytest, to serve metadata to an ETL pipeline 65% faster.
- Cut server downtime by 50% by automating server setup checks with a GitHub Actions CI/CD pipeline.
- Managed project status and documentation in Jira with Agile, leading to a 3-week early deployment.

PROJECTS

Production API Gateway | [GitHub](#) | Python, Redis, FastAPI, GitHub Actions

- Developed a FastAPI distributed API gateway with JWT auth, Redis rate limiting and response caching.
- Reduced API response latency by 95% using Redis-based response caching with atomic transactions.
- Achieved 94% test coverage with 36 unit and integration tests, integrating GitHub Actions for CI/CD.

Stock Data Pipeline | [GitHub](#) | Python, Airflow, Flask, Docker, GCP, Cloud Build

- Built Airflow ETL pipeline loading 200k+ entries to BigQuery daily, tracking daily top stock's max growth.
- Achieved 100% uptime on Flask API deployed on GCP Cloud Build, serving 25+ daily data requests.

GPU Accelerated N-Body Simulation | [GitHub](#) | C++, ROCm HIP, OpenGL

- Simulated forces for 20k+ bodies, accelerated using ROCm HIP on a 7800XT GPU, with OpenGL graphics.
- Achieved a 10x performance gain over the CPU version, improving number of bodies to 10,000 from 1,000.

SKILLS

Programming Languages: Python, Go, C++, Java, TypeScript, Bash

Frameworks & Libraries: Redis, FastAPI, Flask, gRPC, Terraform, Airflow, Dagger

Tools: Linux, Git, Jira, Docker, GitHub Actions (CI/CD), AWS, GCP, Pytest, Jest, PostgreSQL

Concepts: Distributed Systems, Backend Infrastructure, CI/CD, Microservices, DevOps, Automation, SDLC