

SKILLS

Languages: Proficient: Python, C++. Also experienced with: JavaScript, Go, and Java

Technologies: Docker, AWS, Make, GraphQL, PostgreSQL, MongoDB, Elasticsearch, Logstash, Git, React

EDUCATION

University of Waterloo

2018 to 2023

Software Engineering, Honours

Selected Coursework: Operating Systems, Algorithms and Data Structures, Concurrent and Parallel Programming, Database Systems, Sequential Programs (Compilers), Software Engineering Principles (OOD), UI/UX Design (Java & Android)

INTERNSHIPS

APPLE

Cupertino, CA · Jan. 2022 to Aug. 2022

Software Engineering Intern

- Created a Python replica of the macOS kernel's device-tree parser and built a GitLab CI pipeline to process device-trees from nightly builds of OSs.
- Developed a data-loaded GraphQL API for the device trees above that queries/mutates a MongoDB instance, consolidates multiple sources of truth, and filters data based on disclosures.
- Built a Python client and an interactive visualizer/search using React for the device trees above. Federated the API into the team's main GraphQL API.
- Built support for compressed files and implemented an LRU Cache for uncompressed versions in our custom RPC server so that large log files can be paginated/searched in the backend (and not downloaded to the frontend). Used Express, Node.js, Gunicorn (Python WSGI) and React.

NVIDIA

San Jose, CA · May 2021 to Aug. 2021

Software Engineering Intern

- Built a data pipeline using Python, Beats (Golang), Logstash (Ruby), Elasticsearch, and Kibana to automatically detect new logs produced by deep learning models, process them, ship them from customer machines, upload them to Elasticsearch and automatically create Kibana visualizations.
- Built a custom Elastic Beat (a data shipper from Elasticsearch) to process Nvidia's native DL-Log format using Go.

WIND RIVER

Ottawa, ON · Sep. 2020 to Dec. 2020

Software Engineering Intern

- Created scripts to automatically convert GNU Make rules to Ninja (Google Chromium's build system) build rules using data captured from the LD_PRELOAD mechanism of the GNU Linker.
- Built a data pipeline to collect, process, and visualize dependency data from different Yocto Project (an embedded Linux distribution) builds using MongoDB, Python, and Flask in an attempt to find bottlenecks and differences between builds.

BLACKBERRY RESEARCH

Waterloo, ON · May 2020 to Aug. 2020

Software Engineering Intern (Part-time)

- Led a team of 3 students to build a tool in Python that can automatically apply code patches to forks/modified versions of code- a task where the 'git apply' command usually fails (as it searches for a verbatim match).
- Developed a novel method using fuzzy searching and program slicing to identify the same code block in 2 different versions of the same code and achieved a ~31% increase in apply percentage compared to the 'git apply' command.
- Main author of research paper submitted to the 2023 ACM/IEEE International Conference on Software Engineering- bit.ly/3nURxhm.

THOMSON REUTERS

Kitchener, ON · Jan. 2020 to Apr. 2020

Software Engineering Intern

- Designed and developed a REST API backend for an NLP model using Flask, Docker, SQLite, and AWS.
- Built a multithreaded data pipeline in Python to extract over 25 million rows of data from a customer's Microsoft SQL Server, run Flair and Spacy NLP models to remove personal information, and then visualize them using Pandas.

SANDVINE

Waterloo, ON · May 2019 to Aug. 2019

Dev-Ops Engineering Intern

- Created Python scripts to generate Docker Compose files from configuration settings provided by Sandvine's native build system and substantially reduced the number of instructions the user had to provide.

AWARDS & RESEARCH PUBLICATIONS

- **Honorable mention-** 2022 CRA Outstanding Undergraduate Researcher Award (Represented UWaterloo against 100+ North American Universities)- bit.ly/3vjpRbH
- **Overall Winner-** 2020 ACM Microsoft Student Research Competition at ICSE2020 (75+ submissions)- bit.ly/3oUXP14
- **Overall winner-** Hack the North 2019 (1500+ participants)- bit.ly/3BjUsal

Research Publications (Citations: 12)

- **Main author-** Analyzing first contributions on GitHub: what do newcomers do. Published in IEEE Software journal- bit.ly/2M3QH3C
- **Main author-** An empirical study of the first contributions of developers to open source projects on GitHub. Published in The 2020 International Conference on Software Engineering- bit.ly/38Raxbq
- **Second author-** A Curated Archive for Software Engineering Research Tools. Published in SIGSOFT Softw. Eng. Notes- bit.ly/3bNOJzn