

# Vikram N. Subramanian

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## EDUCATION

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### University of Waterloo

Sept. 2018 – Apr. 2023

*Honours Software Engineering Co-op*

*Waterloo, ON*

- Operating Systems (SE350)
- Algorithms (CS341)
- Data Structures and Data management (CS240)
- Introduction to Database management (CS348)
- Concurrent and Parallel Programming (CS343)
- Sequential Programs (Introduction to Compilers- CS241)
- Engineering Calculus I & II (MATH117 & MATH119)

## TECHNICAL SKILLS

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**Languages:** Python, C/C++, Java, SQL

**Technologies:** Docker, Jenkins, GIT, AWS, Flask, RESTful Services, Microsoft SQL Server, PostgreSQL, MongoDB, Pandas, NumPy, Matplotlib, Jira

## RESEARCH PUBLICATIONS

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I have been working part-time with Prof. Mei Nagappan at the David Cheriton School of Computer Science, University of Waterloo since January 2019.

### Drafts to be submitted

- Vikram N. Subramanian, Shayon Banerjee, Yinuo Wang, Yuvika Khardenavis, Meiyappan Nagappan, Glenn Wurster, Scott Cosentino. Apply+ : A tool to intelligently apply security patches. <https://github.com/ApplyPlus/ApplyPlus>

### Accepted drafts

- Andrea Capiluppi, Nemitari Ajenka, Vikram Subramanian, Meiyappan Nagappan. (2022). “Knowledge Sharing for Researchers: Extracting, Indexing and Listing Replication Packages from Past Research” in Knowledge and Information Systems (KAIS)

### Publications

- V. N. Subramanian, I. Rehman, M. Nagappan and R. G. Kula, “Analyzing First Contributions on GitHub: What do Newcomers do,” in IEEE Software, doi: <https://doi.org/10.1109/MS.2020.3041241>.  
Number of citations: 2
- Vikram N. Subramanian. 2020. An empirical study of the first contributions of developers to open source projects on GitHub. In Proceedings of the ACM/IEEE 42nd International Conference on Software Engineering: Companion Proceedings (ICSE '20). Association for Computing Machinery, New York, NY, USA, 116–118. DOI: <https://doi.org/10.1145/3377812.3382165>  
Number of citations: 5 | **Winner of the ACM Microsoft Student Research Competition- Undergraduate at ICSE2020**
- Lakshmanan Arumugam, Vikram N. Subramanian, and Meiyappan Nagappan. 2019. SEGArage: A Curated Archive for Software Engineering Research Tools. SIGSOFT Softw. Eng. Notes 44, 3 (July 2019), 13. DOI: <https://doi.org/10.1145/3356773.3356777>

## INTERNSHIPS

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### Software Engineering Intern

Jan. 2022 – present

*Apple Inc. - Software Infrastructure for Silicon Validation*

*Cupertino, CA*

- Building a scalable and efficient disclosure checking mechanism for a task scheduler that manages jobs within Silicon Validation labs using Asynchronous Python, GraphQL, Luigi, and Kubernetes.

### Software Engineering Intern

May. 2021 – August. 2021

*Nvidia - Software Infrastructure for Silicon Validation*

*Santa Clara, CA*

- Built an extensive 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.

### Research Intern - Office of the CTO

Sep. 2020 – Dec. 2020

*Wind River*

*Ottawa, ON*

- Built a proof-of-concept data pipeline to collect, process and visualize data from different Yocto Project (an embedded Linux distribution) builds using MongoDB, Python and Flask to find bottlenecks in builds and differences between builds.
- Created scripts to run and parse results from Bear (compilation database generator), and used the data procured to map dependencies between different files in a Make build and create a stack trace of calls in an attempt to find serialization points and optimizations.
- Created scripts to automatically create build instructions for the Ninja build system from Make files and build information produced by Bear for C projects.

### Software Engineering Intern

Jan. 2020 – Apr. 2020

*Thomson Reuters Labs - Software infrastructure for data science teams*

*Kitchener, ON*

- Designed and developed a REST API backend for an NLP model using Flask, Docker, SQLite and AWS. Demoed the product to the customer (a 6 person internal team) and provided support till the end of my tenure.
- Built a multithreaded data pipeline in Python to extract over 25 million rows of legal data from a customer's Microsoft SQL Server, run Flair and Spacy NLP models to remove personal information and then visualize them using Pandas.

### Software Engineering Intern

May 2019 – Aug. 2019

*Sandvine - Dev-ops and Build systems*

*Waterloo, ON*

- Built a pre-merge CI pipeline for 4 repositories to run a battery of tests affecting 50+ commits/week using Python, Groovy, Jenkins, JIRA API and GitLab API.
- 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

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### Honourable mention - 2022 CRA Outstanding Undergraduate Researcher Awards

- "The annual CRA awards program recognizes undergraduate students from universities across North America who have distinguished themselves by conducting exceptional research in an area of computer science."
- News articles: <https://cs.uwaterloo.ca/news/>

### Winner of the ACM Microsoft Student Research Competition at ICSE2020

- Conducted an empirical study of first-time open source contributors by scraping GitHub and analyzing the collected data to find meaningful conclusions.
- News articles: <https://cs.uwaterloo.ca/news/> & <https://uwaterloo.ca/software-engineering/news/>

### Winner of Hack the North 2019 at The University of Waterloo (1500+ Participants)

- Built a VSCode extension that produces relevant code snippets by searching for code semantically similar to what the user is writing in a large collection of open-source repositories.
- Link to project: <https://github.com/vikramsubramanian/complete>

### President's Scholarship, University of Waterloo (2018) - \$2000