VIKRAM SUBRAMANIAN

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SKILLS

Languages: Python, C++, C, SQL, Bash, Groovy

Technologies: Docker, AWS, Git, Jenkins, Flask, RESTful Services, Microsoft SQL Server, MySQL, MondoDB, NumPy, Pandas, HTML, CSS, Agile Development, Jira

INTERNSHIPS

SOFTWARE ENGINEERING INTERN
Ottawa, ON · Sep. 2020 to Dec. 2020
Wind River Systems

- Built a data pipeline to collect, process and visualize dependencies in different Yocto Project (an embedded Linux distribution) builds using MongoDB, Python and Flask.
- Created scripts to automatically convert GNU Make rules to Ninja build instructions using data captured from the LD_PRELOAD mechanism of the GNU Linker.
- Used data provided by GNU Linker to map dependencies between different files in a GNU Make build and create a stack trace of calls in an attempt to find serialization points and optimizations in a build.

SOFTWARE ENGINEERING INTERN (PART-TIME)
Waterloo, ON · May 2020 to Aug. 2020
BlackBerry Research

- **Research paper and tool submitted to The 2021 International Conference on Software Engineering as main author: bit.ly/3nURxhm**
- Worked in a team of 5 to build a tool in Python and C++ that can automatically apply code patches to forks/modified versions of projects and increased success rate by 31% compared to Git Apply.

SOFTWARE ENGINEERING INTERN
Kitchener, ON · Jan. 2020 to Apr. 2020
Thomson Reuters Labs

- Built a pipeline to extract over 25 million rows of legal data from a Microsoft SQL Server, run Flair and Spacy NLP models to remove personal information and then analyze them using Pandas.
- Parallelized scripts that run the Flair NLP model to make them 150% faster and saved over 400 hours of processing time.
- Designed and developed a REST API for an NLP model that is currently used by 3 internal teams using Flask, Docker, SQLite and AWS.

DEVOPS ENGINEERING INTERN
Waterloo, ON · May 2019 to Aug. 2019
Sandvine Inc.

- Built a pre-merge CI pipeline for 4 repositories to run a battery of tests affecting 50+ commits/week using Groovy in Jenkins.
- Incorporated Docker-compose in the build system and reduced the number of instructions required to build services containing multiple docker images.

PUBLICATIONS AND AWARDS

Research Publications

I have been working with Prof. Mei Nagappan at SWAG Lab, University of Waterloo and have worked on multiple projects-

- **Main author-** Apply+: A tool to intelligently apply security patches. Submitted to The ACM/IEEE International Conference on Software Engineering. bit.ly/3nURxhm
- **Main author-** Analyzing first contributions on GitHub: what do newcomers do. Published by 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 2019 International Conference on Software Engineering. bit.ly/38Raxbq
  Winner of the ACM Microsoft Student Research Competition at The 2019 Intnl Conference on Software Engineering. bit.ly/3oUXP14
- **Second author-** A Curated Archive for Software Engineering Research Tools. Published in SIGSOFT Softw. Eng. Notes. bit.ly/3bNOJzn

'Complete' - Overall winner at Hack the North 2019 (1500+ participants)

- Built a VSCode extension that produces relevant code snippets by understanding the meaning of docstrings the user writes and searching for code in open-source repositories.
- Created the backend by scraping GitHub's Semantic Search engine, using Difflib to filter search results and TF-IDF and regex to filter parameters.

EDUCATION

University of Waterloo
2018 to 2023

Software Engineering, Honours

Selected Coursework: Operating Systems, Data Structures and Algorithms, Database management, Sequential Programs (Compilers), Software Engineering Principles (OOD), Data Abstraction and Implementation (C++, OOP), Programming Principles (C).