VIKRAM SUBRAMANIAN

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SKILLS

LANGUAGES: Python, C++, C, Groovy, JavaScript, Bash
TECHNOLOGIES: Docker, Jenkins, Linux, Flask, Git, Artifactory, SQL, GraphQL, OpenCV, AWS S3

EMPLOYMENT

BUILD ENGINEER - DEVOPS · Sandvine Inc.
Waterloo, Canada · May 2019 to August 2019

- Built the pre-merge CI pipeline for over **13 products** affecting **200+ programmers** by using **Groovy** in **Jenkins.**
- Incorporated **Docker-compose** in the build system to make the fished products a cluster of containers thereby reducing deployment from over **200 instructions to 1**.
- Replaced **NFS** with **SSH** on build scripts for file transfer and decreased copying times by **20%** and stopped large builds from timing out.
- Developed a **Docker** image of **centOS** with support for repository managers so that post-build, packages download **1.5x faster** and are **100% secure**.

ROBOTICS INTERN · Trilogy Technologies
Singapore · April 2018 to August 2018

- Programmed a **UR5 robotic arm** and a **Robotiq gripper** to retrieve and return books in a library by generating **MODBUS** instructions in real-time.
- Programmed a motorized platform to make the arm autonomous using **OpenCV** and a network of **Raspberry-pi**s that make decisions based on stimuli to the arm.
- Implemented an **RFID** system for the robot to identify unique books and developed an algorithm to identify the location of books with respect to each other.

RESEARCH

EMPIRICAL STUDY OF PULL REQUESTS · Supervisor - Prof. Mei Nagappan
June 2019 to Present

- Collaborating with Prof. RG. Kula at NAIST, Japan on an empirical study of commit histories in open source projects. The goal is to investigate the nature of open-source commits across users with varying skill levels.
- Created scripts in **Python** and **Bash** to crawl GitHub and mine the commit histories of **30,000+ users** and to identify patterns in commit behaviour such as frequency, nature of commit, quality, etc.
- Currently interviewing open source contributors to understand motivations and difficulties.

SE GARAGE · The Software Architecture Lab, University of Waterloo
January 2019 to April 2019

- Worked in a team of 3 developers to create a platform that archives tools developed through software engineering research. Built using **AWS S3, Elasticsearch, MySQL** and **Flask**.
- Represented this project at the International Conference of Software Engineers (ICSE) 2019 and processed over **20 tools** at the conference.

PROJECTS

'COMPLETE' - OVERALL WINNER AT HACK THE NORTH 2019 (1500+ PARTICIPANTS)

- Built a VSCode extension that produces relevant code snippets by searching for code in public repositories and generates full functions by interpreting the meaning of docstrings the user writes.
- Created the code generator by scraping GitHub's Semantic Search engine and the backend using **Difflib** to filter search results and **TF-IDF** and **regex** to filter parameters to produce meaningful results.

PYANG

- Developed a parser for the **YANG** markup language by modifying the **PYANG** Python tool.
- Created a custom linter for selected syntax rules by incorporating **regex** into the parser.

EDUCATION

University of Waterloo, Canada
2018 to 2023

Software Engineering, Honours
Selected Coursework: Programming Principles (C), Data Abstraction and Implementation (C++), Sequential Programs (MIPS Assembly, C++), Digital Computers (ARM Processors)