Isaac Christopher Vance

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Work Experience and School Projects

Sporian Microsystems
June - October 2020

Software Development Intern

- Used **Flask** web development framework to implement webUI for displaying data from mobile microcontrollers.
- Implemented improved company VCS strategies for using **Git** and GitBlit to track many large projects of different natures.
- Gained familiarity with Jinja templates in order to efficiently populate **HTML** files using python.
- Pair programmed with senior developers to refactor implementation of device access programs in **Python**.
- Experimented with **Django** framework to assess cost/benefit of functionality in relation to implementation weight.
- Participated in daily standup meetings as well as bi-monthly planning meetings with firmware team and company CEO.

OS Thread Safety Project
Spring Semester 2021

Systems Admin Developer — *CU Boulder*

- Designed and implemented a **Shared Buffer Array** to synchronize access to data files for requester and resolver **thread pools**.
- Accessed **<pthread.h>** and **<semaphore.h>** **C** libraries to use **Mutexes** and **Semaphores** for **thread synchronization**.
- Implemented a **Stack** data structure with **Synchronized Push** and **Pop** to manage thread access to the Shared Buffer Array.
- Maintained good coding standard practices to prevent **Deadlock, Starvation,** and **Race Conditions.**
- Ran completed program over University **VPN** and cloud **VM** to process filename requests and assign appropriate **IP addresses**.

RISC-V ISA CPU Implementation
Spring Semester 2021

Embedded Developer — *CU Boulder*

- Independently designed and built a fully functional RISC-V processor.
- Designed and built **RISC-V Assembly** programs to test hardware functionality of ISA design and code.
- Iteratively designed block diagrams and schematics outlining processor control logic for hardware implementation.
- Implemented multiple C-like languages such as **CodAl** to write embedded programs for hardware instructions.

Object Oriented Analysis and Design Project
Spring Semester 2021

Application Programmer — *CU Boulder*

- Collaborated in Xtreme Programming environment to implement a functional video game MVP in first iteration.
- Created an application using test driven development (**TDD**) by designing **JUnit** tests with IntelliJ IDE.
- Refactored design iteratively in order to adapt to changing curriculum/client requests and needs.
- Customized **git** VCS repo to integrate smoothly across team CLI and GUI preferences.
- Used Slack and **GitHub KanBan** for continuous team project tracking and communication.

Education

- University of Colorado at Boulder:
  - **Bachelor's Degree in Computer Science:** Dec 2021
  - **Bachelor's Degree in Mathematics:** Dec 2016
  - **Bachelor's Degree in Economics:** Dec 2016

- Udemy/Mosh:
  - **Advanced C Programming:** Dec 2020
  - **Web Developer Bootcamp:** Aug 2021
  - **Object Oriented Java:** Jun 2021

Technical Skills

Programming: Java, C/C++, Python, Ruby, Javascript, Kotlin, Scala
Automation: Bash/zsh, Gradle, JUnit, Apache Maven
VCS and Workspace: Git, IntelliJ, Android Studio, Visual Studio, Slack, Microsoft Office Suite, Google Suite
Web Development: Node.JS, JQuery, HTML, CSS, Flask, Django
Databases: MySQL, PostgreSQL, SQLite, MongoDB, Cassandra
Operating Systems: Linux/Unix, Ubuntu, Windows, OSX
Cloud and Other: AWS, Digital Ocean, Heroku, Docker, VirtualBox, VMWare

Personal Interests: Music Production and Performance, Sailing, Rock Climbing, Hiking, Camping, Basketball