PRIYAL SUNEJA

Computer Science Undergraduate @ UC San Diego

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EXPERIENCE

Software Engineering Intern

Google

June 2020 – Sept 2020 Remote

- Established a **WebAssembly runtime environment** that allows porting C/C++ applications to Webassembly using Emscripten and Node.js.
- **Researched the top 5 contending WebAssembly runtimes** and their difference such as exposed ABIs and code reusability to determine the ideal WebAssmebly Runtime to port networking code bases to.
- Learnt and solved the various limitations of standalone WebAssembly through **cross-platform communication** between NodeJS and Webassembly runtimes using Embind.
- Wrote a layer that **emulates a subset of POSIX networking functionality** using NodeJS features and allows porting unchanged C/C++ code to WebAssembly.
- **Documented** the process of communicating between JavaScript and C++ and the steps to set up an environment that allows using the above mentioned tools.
- Participated in several Women Intern Community events and mediated the discussions for the gWIC Book Club.

Computer Science Tutor

CSE Department, UCSD

April 2019 – present San Diego, CA

Tutored for Intro to Computer Science, Intro to Discrete Mathematics and Principles of Computer Operating Systems.

- Clarified **Operating System concepts** such as synchronization, threading, virtual memory, demand paging, file systems etc.
- Clarified **Discrete Math concepts** such as recursive definitions, number systems, truth tables and circuits, boolean statements and predicates, induction and similar proof strategies, cardinality etc.
- Graded programming assignments, quizzes/exams and answered questions on an online forum and in office hours.

Software Engineering Intern

Service Now

June 2019 – Sept 2019 San Diego, CA

- Interfaced between the Enterprise platform (Glide) and a third party queuing service (Kafka) to **test the data pathway** between a producer and consumer set.
- Built a **testing framework to locate the point of failure** in the data pathway built using Kafka and Confluence.
- Integrated an **interactive UI with a self built testing framework** using AJAX and Java.
- Practiced **industry best practices** such as: conducting code reviews with/for teammates, participating in distributed development, designing new components and interfaces and leading them to completion.

EDUCATION

BS in Computer Science

UC San Diego (GPA: 3.8)

Expected Graduation: **June 2021**

RESEARCH

SysNet UCSD

Advisor: Geoff Voelker

April '20 – Now UCSD

- Exploring the benefits and overheads of **using persistent memory** for operating system data structures.
- Moving the Linux file buffer cache to Persistent Memory to **study the performance benefits** of having a pre-filled file buffer cache on boot.
- Using the **Intel MPK functionality** to prevent corruption of persistent data structures from stray writes.

Early Research Scholars Program

Advisors: Sorin Lerner, William Griswold

Oct '18 – Jun '19 UCSD

- **Gamified** loop invariant proofs and utilized **crowdsourcing** to gather helpful statistics from players
- Built a mobile **application** to enable users to play the game on their mobile devices using **Unity** and **C#**.
- Studied the difference in user participation in single player and multi player mode of the game.
- Poster presented at the UCSD CSE Research Expo.

SKILLS

- **Langauges:** C/C++, C#, JAVA, Assembly
- **Concepts**: Multithreading, Virtual Memory, File Systems, Virtualization, Systems Programming, Networking

HONORS/LEADERSHIP

- **CSE Undergraduate Award for Excellence in Leadership and Service** UCSD CSE Department 2019/20
- **CSE Undergraduate Award for Excellence in Contributions to Diversity** UCSD CSE Department 2018/19
- **President** Women In Computing, UCSD 2020/21