Priyal Suneja

Education

Sept '21 – Present	**PhD in Computer Science**, *University of Washington*, Seattle, WA. **Advisor:** Thomas Anderson
Sept '17 – June '21	**BS in Computer Science**, *UC San Diego*, La Jolla, CA. **Advisor:** Geoff Voelker **GPA:** 3.85/4.0 (Cum Laude)

Active Research

Oct '22 - Now — **Hardware Security**, *UW*.
- Working on a project to identify and exploit silent computational errors that happen due to fabrication errors.

June '22 - Sept '22 — **Hotness Tracking for Disaggregated Memory**, *Microsoft Research*.
- Simulated two in-hardware hotness tracking mechanisms for ranking hotness of memory pages.
- Evaluated the above mentioned mechanisms and put forwarded pros and cons of both by looking at their accuracy and overheads.
- The results from this internship impacted the ASIC designs of future CXL memory controllers.

Oct '21 - May '22 — **EPerf**, *UW*.
- Built a tool to measure fine grained energy consumption of an application at a process level granularity.
- Utilized hardware performance counters to provide data to allow prediction of an application's energy consumption.
- I am continuing to mentor students that work on projects that have spawned from this research.
- Link to poster

Industry

June '20 – Sept '20 — **Research Internship**, *Microsoft*, Redmond.
Managers: Monish Shah, Daniel Berger
- Project described in the research section.

June '20 – Sept '20 — **Software Engineering Intern**, *Google*, Remote.
Manager: Robert Szewczyk
- Determined the ideal WebAssmebly Runtime for porting networking code by researching differences such as exposed ABIs and code reusability among the various available runtimes
- Resolved the limitations of standalone WebAssembly through cross-platform communication between NodeJS and WebAssembly runtimes using Embind
- Emulated a subset of POSIX networking functionality using NodeJS to allow porting unchanged C/C++ code to WebAssembly

June '19 – Sept '19 — **Software Engineering Intern**, *ServiceNow*, San Diego.
Manager: Jennifer Lee, Mansoureh Takaffoli
- Built a testing framework to locate the point of failure in the data pathway built using Kafka and Confluence
- Interfaced between the Enterprise platform (Glide) and a third party queuing service (Kafka) to test the data pathway between a producer and consumer set
- Integrated an interactive UI with a self-built testing framework using AJAX and Java

Past Projects

April '20 – June '21 — **Undergraduate Honors Thesis**.
- Explored the benefits and overheads of using Non Volatile Memory for operating system data structures.
- Made the Linux page cache persistent by moving it from DRAM to emulated NVM.
- Used the Intel MPK functionality to prevent corruption of persistent page cache from stray writes.

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April - June'21	**Planet Boelker**. ○ Built a real-time, 3D, multiplayer and distributed video game over the course of 10 weeks. ○ Implemented a multithreaded server that maintained the game state and synchronized movements of clients in real-time. ○ Built a physics engine and designed the game logic for collision detection and movement of players around a planet. ○ Links: – Github – Presentation – Project Website
Sept '18 – June '19	**Student Researcher**, *ERSP*, UC San Diego - CSE Department. ***Program:*** Early Research Scholars Program (ERSP), a team-based research apprentice experience for computer science and engineering majors in their second year of the program ***Advisors:*** Sorin Lerner, William Griswold ○ Project focused on crowdsourcing Software Verification by gamifying the resource intensive problem of loop invariant identification. ○ Ported "INVGame", a single-player Facebook game, to a mobile platform, and made it multiplayer using Unity and C#. ○ Studied the difference in time taken per level and quality of data generated in both games to determine user participation. ○ Poster presented at the UCSD CSE Research Expo

Teaching

Oct '21 – Dec' 22	**Teaching Assistant**, *University of Washington*, Seattle, WA. TA for Introduction to Operating Systems.
April '19 – June' 21	**Computer Science Tutor**, *UC San Diego - CSE Department*, La Jolla, CA. ○ Tutored for 6 quarters on topics such as Operating Systems (CSE 120), Systems Programming (CSE 30), Discrete Mathematics (CSE 20) and Intro to CS (CSE 8A) for an average class size of 200 students. – Assisted students by debugging assignments and clarifying concepts – Graded homeworks and exams – Scheduled lab hours for the teaching staff

Service

Nov '20	Student Volunteer	*OOPSLA '20*
2020/21	President	*Women In Computing @ UCSD*
	Vice President (2019/20)	
	Outreach Co-Chair (2018/19)	
2019/21	Celebration of Diversity - Lead	*UCSD CSE Department*

Awards

Sept '21	Microsoft Endowed Fellowship	*Paul G. Allen School of Computer Science & Engineering, UW*
Jun '21	Award for Excellence in Computer Science	*Jacob's School of Engineering, UCSD*
Dec '20	SIM San Diego Academic Scholarship	*Society for Information Management, San Diego*
Jun '20	Excellence in Leadership and Service	*Computer Science and Engineering Department, UCSD*
Sept '19	GHC Scholar	*AnitaB.Org*
Jun '19	Excellence in Contributions to Diversity	*Computer Science and Engineering Department, UCSD*

Tools & Languages

Java, C, C++, Go, Assembly, Version Control Systems