

Research Interests

Enterprise Security, Email Security, Internet Cyber Crime, Internet Measurement.

Education

2023 – Now **University of California, San Diego**, *Doctor of Philosophy in Computer Science*.

Advisors: [Stefan Savage](#) and [Geoffrey M Voelker](#)

2021 – 2023 **University of California, San Diego**, *Master of Science in Computer Science*.

Specialization in Computer Systems.

2016 – 2020 **PES University, Bangalore**, *Bachelor of Technology in Computer Science*.

Graduated First Class with Honors.

Publications

Peer-Reviewed Papers

Ben Du, Katherine Izhikevich, **Sumanth Rao**, Guatam Akiwate, Cecilia Testart, Alex C. Snoeren, and kc claffy. "IRRegularities in the Internet Routing Registry". In *Proceedings of the ACM on Internet Measurement Conference (IMC) 2023*. 25% acceptance-rate.

Enze Liu, **Sumanth Rao**, Sam Havron, Grant Ho, Stefan Savage, Geoffrey M Voelker, and Damon McCoy. "No Privacy Among Spies: Assessing the Functionality and Insecurity of Consumer Android Spyware Apps". In *Proceedings on Privacy Enhancing Technologies*, 2023. 22% acceptance rate.

In-Progress Papers

Sumanth Rao, Enze Liu, Grant Ho, Geoffrey M Voelker, and Stefan Savage. "Unfiltered: Measuring Cloud-based Email Filtering Bypasses". (*Under Review*).

Industry Experience

Jun 2022 **Google, San Francisco** *Software Engineer Intern*

- to Sep 2022
- Improved debugging experience for developers when spawning new Borg instances within *Virtual Cluster*, mimicking user experience in Google prod.
 - Simplified proxying to web resources within *Virtual Cluster* instances, reducing the time overhead sevenfold.
 - Evaluated several storage solutions within Google (Colossus, Spanner, Persistent Disk) to store exported command history from *Virtual Cluster* invocations.

Aug 2020 **Citrix, Bangalore** *Software Engineer*

- to Aug 2021
- Reduced the Citrix License Server testing resource utilization by 50% on Citrix's Xen Hypervisor, by re-designing services using Docker-based microservices.
 - Awarded the highest level (black belt) of Citrix software security certification.

- Jan 2019 **Zulip Open Source Contributor & Google Summer of Code Alumni**
to Aug 2020
- Contributed ~100 patches to Zulip Server, WebApp, and Terminal repositories, covering Python, Django, and JavaScript source code.
 - Responsible for increasing user adoption of Zulip Terminal, implementing several popular features from the web app as an early developer.

Research in the News

- 2023 **No Privacy Among Spies: Assessing the Functionality and Insecurity of Consumer Android Spyware Apps**

[This is What Happens When Your Phone is Spying on You](#), UCSD News, March 2023.

[Spyware — easy to install, easy to hack](#), KPBS, March 2023.

[Spyware Lurks in Android Smartphones](#), CACM News, May 2023.

['Stalkerware': Scientists study 14 spyware apps to see how they can infiltrate your phone](#), CTV News, March 2023.

Scholarships and Awards

- 2023 Travel grant recipient for IMC 2023 in Montréal, Canada
2023 Travel grant recipient for PETS 2023 in Lausanne, Switzerland.
2020 – 2021 JN Tata Endowment Scholar — Recipient of the scholarship to pursue graduate studies in Computer Science at UC San Diego.
2016 – 2020 MRD Merit Scholarship — Recipient of the scholarship in recognition of performing within the top 20% of the cohort at PES University.
2019 Pravega IBM Hackathon, Indian Institute of Science, Winners — Developed NLP models that determine the authenticity of news articles.
2018 Idea-Pitch Contest, Center of Entrepreneurship and Innovation, Winners — Short bootcamp on validating startup ideas, creating business models, and pitching to investors.

Invited Talks

"Having a great GSoC as an Open Source Newbie!"

- Shared insights on how to have a successful summer as a Google Summer of Code (GSoC) candidate, based on my experience in the Zulip community.
- Presented as a part of the November GSoC Community Talks held virtually with a live Q&A.
- Recording available on [Google's Open Source YouTube channel](#).

Teaching/Mentoring Experience

- Winter 2023 **TA: Graduate Operating Systems (CSE 221) UC San Diego**
- Responsible for evaluating course project based on measuring various aspects of operating system performance and holding office hours.

Fall/Spring 2022 **TA: Introduction to Computer Security (CSE 127) UC San Diego**

- Responsible for leading discussions, developing assignments, holding office hours and grading exams.
- Received 92.9% average recommendation rating from student evaluations for the course in Spring.
- One of the student evaluation comments "Great discussion leader, super clear and effective. One of the best TA's in this course."

Summer 2020 **Google Summer of Code Mentor**
/2021/2023 *Zulip - Open source team chat project*

- Mentored four students overall to enhance the UI/UX of Zulip's core applications.
- Responsible for guiding and reviewing patches from the mentees as they contributed and engaged with the community.

Leadership

Oct 2021 **VP External, UCSD Jacobs Graduate Student Council**

- to Now
- Managed on-campus recruitment drives for Intel and ASML with ~ 250 student participants.
 - Collaborated with Corporate Affiliate Program at UC San Diego, to match 35 Ph.D. students with industry mentors.