Sumanth Rao

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Research Interests

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

Education

2021 – 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

Sumanth Rao, Enze Liu, Grant Ho, Geoffrey M Voelker, and Stefan Savage. "Unfiltered: Measuring Cloud-based Email Filtering Bypasses". In *Proceedings of the ACM Web Conference (WWW) 2024 (To appear)*. 20% acceptance rate.

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.

Industry Experience

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

- Improved debugging experience when spawning new Borg instances within *Virtual Cluster*, mimicking user experience in Google's production environment.
- 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 to Aug 2021	**Citrix, Bangalore** *Software Engineer*

- 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 to Aug 2020	**Zulip** *Open Source Contributor & Google Summer of Code Alumni*

- ○ 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

2024	**Measuring Email Filtering Bypasses**
	Cloud Email Filtering Bypass Attack Works 80% of the Time, DarkReading, March 2024.
2023	**Assessing 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.

Skills

Languages	Most comfortable in Python, C/C++; Familiar with Rust, Shell script, Go, MySQL, JS, HTML/CSS.
Tools	Familiar with Zmap, Git, Wireshark, Docker, Vim, and LaTeX.

Invited Talks

Mar 2024	**"FTC's PrivacyCon 2024, Panel 6: Mobile Device Security "**

- ○ Presented our work analyzing Spyware apps, followed by participating in a moderated panel around Android Security.

Nov 2022	**"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.

Teaching/Mentoring Experience

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 /2021/2023   **Google Summer of Code Mentor**

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 to Now   **VP External**, *UCSD Jacobs Graduate Student Council*
- Managed on-campus recruitment drives for Intel and ASML with $\sim$ 250 student participants.
- Collaborated with Corporate Affiliate Program at UC San Diego, to match 35 Ph.D. students with industry mentors.