

Sathvik N. Prasad

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Research Interest

My research interest spans the area of system security and privacy, with an emphasis on developing and applying data-driven techniques to study spam, abuse and fraud. I currently work on developing techniques to detect and characterize “Robocalls” — a catch-all term for automated or semi-automated phone calls.

Education

- 08/2018 – 05/2024 (est.) **Ph.D.** in Computer Science, North Carolina State University, Raleigh, USA
Change of program from M.S. in Computer Networking (08/2018 – 08/2019)
Advisor: Dr. Bradley Reaves
- 09/2011 – 05/2015 **Bachelor of Engineering** in Electronics and Communication
R. V. College of Engineering, Bangalore, India

Publications

Conference Publications (Peer Reviewed)

- Who’s Calling? Characterizing Robocalls through Audio and Metadata Analysis**
[Sathvik Prasad](#), Elijah Bouma-Sims, Athishay Kiran Mylappan, Bradley Reaves
USENIX Security Symposium, Aug 2020.
Distinguished Paper Award, Facebook Internet Defense Award – 1st Prize (\$100,000)
- Thou Shalt Discuss Security: Quantifying the Impacts of Instructions to RFC Authors**
Justin Whitaker, [Sathvik Prasad](#), Bradley Reaves, and William Enck
Security Standardisation Research (SSR) Conference, Nov 2019.

Posters

- Who’s Calling? Characterizing Robocalls through Audio and Metadata Analysis**
[Sathvik Prasad](#), Elijah Bouma-Sims, Athishay Kiran Mylappan, Bradley Reaves
Network and Distributed System Security Symposium (NDSS), Feb 2020. *Best Poster Presentation*
- Who’s Calling? Characterizing Robocalls through Audio and Metadata Analysis**
[Sathvik Prasad](#), Elijah Bouma-Sims, Athishay Kiran Mylappan, Bradley Reaves
Triangle Area Privacy and Security Day (TAPS), Oct 2019.

Other Publications

- Does ignoring robocalls make them stop? Here’s what we learned from getting 1.5 million calls on 66,000 phone lines.**
[Sathvik Prasad](#), Bradley Reaves. The Conversation ([Online Article](#)), Sept 2020

Service

- 2021 External Reviewer – USENIX Security
- 2021 External Reviewer – Network and Distributed System Security Symposium

Awards & Honors

- 2020 Facebook Internet Defense Award at USENIX Security – 1st Prize (\$100,000)
- 2020 Distinguished Paper Award at USENIX Security (top 1% of accepted papers)
- 2020 Best Poster Presentation Award at NDSS
- 2020 Student Travel Grant to attend NDSS
- 2017 Cisco Operational Excellence Award, Cisco Early Career Network Achiever Award
- 2015 Cisco CLEAD Award for Innovation

Employment

Research Experience

- 08/2019 – Present **Graduate Researcher Assistant**, North Carolina State University
Using audio analysis, speech processing, and NLP techniques, I study robocalling campaigns in the real-world phone network by operating a telephony honeypot.
Advisor: Dr. Bradley Reaves
- 01/2019 – 04/2019 **Student Member**, WSPR Lab, North Carolina State University
I developed techniques to identify telephony related CVEs from the NVD dataset.
Advisor: Dr. Bradley Reaves
- 06/2014 – 07/2014 **Summer Research Fellow**, Indian Institute of Science, Bangalore, India
I studied techniques to synthesize antenna-arrays with specific characteristics.
Advisor: Dr. Narayanaswamy Balakrishnan

Industry Experience

- 06/2019 – 08/2019 **Engineering Intern**, CenturyLink, Broomfield, Colorado, USA
Automated the configuration deployment process for an Avaya VoIP System.
- 10/2017 – 07/2018 **Software Development Engineer**, Cisco Systems, Bangalore, India
Developed VoIP features for Cisco's enterprise application suite while following agile development practices. Identified and fixed critical defects and security flaws.
- 07/2015 – 09/2017 **Technical Services Engineer**, Cisco Systems, Bangalore, India
Troubleshoot some of the world's largest VoIP networks, uncovered security flaws in VoIP products and worked with internal development teams to fix critical bugs.
- 01/2015 – 07/2015 **Intern**, Cisco Systems, Bangalore, India
Designed, implemented and deployed *MagicTrace* — a tool to identify VoIP call-failure within minutes, instead of hours of manual analysis. The project received an award for innovation and impact, and drastically simplified problem isolation.

Talks

1. **Who's Calling? Characterizing Robocalls through Audio and Metadata Analysis**
USENIX Security Symposium, Aug 2020, *Virtual Invited Talk*
2. **Who's Calling? Characterizing Robocalls through Audio and Metadata Analysis**
University of Wisconsin-Madison, Aug 2020, *Virtual Invited Talk*
3. **Who's Calling? Characterizing Robocalls through Audio and Metadata Analysis**
The George Washington University, Sept 2020, *Virtual Invited Talk*

Expertise & Skills

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| Programming | Python, C, C++, TCL |
| Operating System | Ubuntu, Cisco IOS, Cisco IOS-XE, XINU |
| Tools | L ^A T _E X, Git, Wireshark, Audacity, MongoDB, Asterisk, Cisco IP-IP Gateways, Cisco VoIP and TDM Gateways, Cisco IP Routing & Switching, Cisco ASA (Firewall), VPN, VMWare vCenter, Vagrant |
| Relevant Courses | Computer and Network Security, Advanced Network Security, Operating Systems, Cellular Network Security, Algorithms, Natural Language Processing |

Leadership & Mentoring

- Mentored an undergraduate student at NC State University and three new hires at Cisco
- Trained developers and network engineers on automation workflow at Cisco
- Developed a comprehensive training plan on networking fundamentals

Community Outreach

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| 04/2020 – 08/2020 | Peer Support Helpline Volunteer , India Student Hub USA During the COVID19 pandemic's onset, I was part of a student-run helpline where we provided accurate and reliable information to students studying in the US. |
| 08/2019 – 04/2020 | Campus Lead , India Student Hub USA Organized a university-wide poster presentation at NC State University. |
| Fall 2019, Fall 2020 | Small Pack Leader , North Carolina State University As a student volunteer for the Office of International Services, I led a group of about 50 new incoming graduate students from more than 10 countries. My responsibility was to help these new international students transition from their home country to academic life at North Carolina State University. |

Media Coverage

- [Facebook Research Press Release – Facebook Internet Defense Award Winners](#)
- [ACM Communications – Study Examines Robocall Strategies and Techniques for Stopping Them](#)
- [Newsobserver – Tired of robocalls? NC State, Bandwidth team up in search of solutions](#)
- [WRAL Article – Fight against robocalls is making progress, NCSU study finds](#)
- [Bruce Schneier's Blog – Robocall Results from a Telephony Honey-pot](#)
- [NC State Press Release – Study Debunks Robocall Myths, Lays Groundwork for Stopping Them](#)
- [ZDNet – A simple telephony honey-pot received 1.5 million robocalls across 11 months](#)
- [Engadget – Research shows answering one robocall doesn't lead to more](#)
- [Bandwidth Inc. – Bandwidth Partners with NC State University on Rigorous Robocalling Study](#)
- [NASDAQ – Bandwidth Partners with NC State University on Rigorous Robocalling Study](#)
- [Yahoo Money – Bandwidth Partners with NC State University on Rigorous Robocalling Study](#)