Nithin Shyam Soundararajan

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EXPERIENCE

WSPR Lab at NC State, Research Assistant January 2024-Present

- Research on cellular and telecom network security under the supervision of Dr. Brad Reaves
- Working on out-of-band STIR/SHAKEN implementation for TDM networks to help prevent telecom fraud
- Developed an IDS on hardware utilizing Past-Time Linear Temporal Logic for 4G networks

Schneider Electric, Security Researcher September 2021-June 2023

- Conducted penetration tests on web, thick client (Windows and Linux), Docker, and embedded applications related to IoT, home automation, and industrial
- Developed a fuzzer for GUI based applications using Defensics and Python for Dynamic Analysis
- Managed AWS cloud instances and on-premises server infrastructure for running security testing tools and for supporting company-wide security trainings
- Led the cellular and wireless security activities for testing IoT devices operating using wireless technologies such as LTE, Zigbee, Bluetooth LE, etc.

Indigenous 5G Testbed Project at IIT Madras, Research Intern March 2021-August 2021

- Developed a SIM card programmer in C to manipulate files in a SIM Card using UART
- Set up a terminal to interact with a MODEM inside an Android phone using ADB

NC State, Grader January 2024- Present

- Grader for Computer and Network Security, Advanced Network Security, and Human-Centered Security

PROJECTS (*full list*)

Network Intrusion Detection System using Machine Learning (PyTorch, Python, Network Security)

- Built an IDS for detecting network attacks in IoT environments
- Trained the ML model to detect DoS, Mirai, Recon, Brute force, Spoofing and Web-based attacks

Encrypted File Transfer (Python, AES, DHKE, Sockets, Wireshark)

- Developed an application to transfer files over an encrypted network channel using AES and DHKE
- Demonstrated an on-path attack on DHKE to steal keys and hence decrypt sniffed packets

Evaluation of Android Apps on Privacy (Amandroid, Python, JADX, Java, Static Analysis)

- Analyzed 18 Android apps using Amandroid and identified sensitive taint paths (based on location, microphone, and storage access)
- Checked for possible privacy violations based on the discovered taint paths and the app's intended behavior

EDUCATION

Master of Science, Computer Engineering August 2023-May 2025

North Carolina State University, Raleigh GPA: 4.00

Coursework: Computer & Network Security, Cryptographic Engineering and Hardware Security, Cellular and Telephone Network Security, Neural Networks

Bachelor of Engineering, Electronics and Communication August 2017-April 2021

Anna University, India GPA: 8.43/10

Coursework: OS, Computer Architecture, Data Structures & Algorithms, Communication Networks

TECHNICAL SKILLS & CERTIFICATIONS (*full list*)

Certifications: CompTIA Security+

Programming Languages: Python, Rust, C, C++, C#, Java, Bash

Skills: Reverse Engineering (x86 and ARM), Thick Client, Embedded and Web Pentesting, Cryptography, Machine Learning, Static Analysis, Dynamic Analysis

Tools: Git, Docker, Make, AWS, Proxmox, VMware ESXi, PyTorch, NNI, security/pentesting tools (link)