Sanket Goutam

PH.D. CANDIDATE · STONY BROOK UNIVERSITY

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Experience

Ethos Lab · *Stony Brook University*
RESEARCH ASSISTANT · *Aug. 2021 - Present*

- Advisor: Prof. Amir Rahmati
- Conducting research broadly addressing security and privacy challenges in pervasive computing systems, such as mobile systems, wearables (AR/VR), and IoT or smart home ecosystems.
- My Ph.D. Thesis primarily focuses on privacy engineering for consumer grade technology. I have developed novel access control frameworks [C2] and authentication systems [C3] that are practical, performant, and privacy-aware.

Samsung Research America · *Hybrid*
SECURITY RESEARCH ENGINEER · *May 2023 - August 2024*

- Mentors: Dr. Michael Grace, Dr. Hayawardh Vijayakumar
- I hold a long-term research collaboration (internships and part-time) with the KNOX Security team.
- Developed a novel access control framework for a new class of Android SDK applications that control how user apps collaborate with each other.
- Developed a privacy-enhanced logging framework, leveraging DICE attestation for smart phones, for storing and sharing user information during post-compromise forensics.
- Performed security and privacy reviews for Zero Trust line of products, presented my findings to leadership, identifying key areas for product differentiation.

HPE Aruba Networking · *Santa Clara, CA*
SOFTWARE ENGINEER - II (SYSTEMS) · *2018 - '21*

- Member of the Aruba OS Infrastructure team.
- Worked on several OS infrastructure components for the Aruba OS, developed IPC services, gRPC and protobuf networking modules, and distributed data storage protocols.
- Received two *recognition awards* for high-impact contributions in making distributed data storage protocols highly efficient under large-scale deployments.

Wolfpack Security & Privacy Research (WSPR) Lab · *North Carolina State University*
RESEARCH ASSISTANT · *2017 - '19*

- Co-Advisors: Prof. William Enck, Prof. Brad Reaves
- Developed a novel least-privilege network access model [C1], called *NetViews*, using SDN primitives that limits the exposure of an IoT device over the smart home network.

GE Digital · *Bangalore, India*
SOFTWARE ENGINEERING INTERN · *2017*

- Developed PoCs for a billing and utilization tracker application and report automation for GE Healthcare's Finance department.
- Among the top 3 finalists at the GE Digital Predix Hackathon.

Education

Stony Brook University · *Stony Brook, New York*
PH.D., COMPUTER SCIENCE · *2021 - present*
GPA: 3.93/4.0

North Carolina State University · *Raleigh, NC*
M.S., COMPUTER SCIENCE · *GPA: 3.875/4.0*

VIT University · *India*
B.TECH, COMPUTER SCIENCE & ENGINEERING · *GPA: 8.84/10.0*

Selected Publications

PEER-REVIEWED CONFERENCE PUBLICATIONS

C3 "Unified Authentication for the Smart Home Ecosystem."
Sanket Goutam and Amir Rahmati.
Under Submission. 2024.

C2 "Erebus: Access Control for Augmented Reality Systems."
Sanket Goutam*, Yoonsang Kim*, Amir Rahmati, and Arie Kaufman.
USENIX Security Symposium **(USENIX Sec'23)**. August 2023.

C1 "Hestia: Simple Least Privilege Network Policies for Smart Homes."
Sanket Goutam, William Enck, and Bradley Reaves.
ACM Conference on Security and Privacy in Wireless and Mobile Networks **(WiSec'19)**. May 2019.

BOOK CHAPTERS

B1 "Enhancing Web Security using Learning Algorithms for Anomaly Detection."
Kiruthika Devi B.S., **Sanket Goutam**, Anisha Jain, and Sai Pranav R.
Handbook of Cloud Security Parameters: Real-Time Measurements, Shanlax Publications. 2016.

OTHER PUBLICATIONS

O1 "Growing Energy Resiliency Through Research"
William Anderson, Arie Kaufman, Amir Rahmati, Yoonsang Kim, **Sanket Goutam**, Michael Gouzman, Yacov Shamash, Alex Shevchenko, Claran J. Marti, Nicolaos Maltas, Peng Zhang, Yifan Zhou, Benjamin Hsiao, Vyacheslav Solovyov, Juan Pablo Trelles, Fanglin Che, Hsi-Wu Wong, Alessandro Sabato, Christopher Niezrecki, Douglas Van Bossuyt, Dan Nussbaum, H. Scott Coombe.
Future Force Magazine. Vol. 9, No. 1. April 2023

PATENTS

Pa1 Enforcing Least Privilege Network Policies for Smart Homes, *NCSU Invention #19262*, 2019

Presentations

INVITED TALKS

- *Security in AR/VR Systems*.
Invited guest lecture hosted by Dr. Saeed Boorboor, Stony Brook University. Spring 2024.

- *Choosing a STEM Career*.
Invited panelist for Silicon Valley Outreach Program, San Jose, CA. Summer 2018.

- *Introduction to Programming*.
Invited guest lecture for Students in Programming, Robotics, and Computer Science (SPARCS), NCSU. Summer 2018.

CONTRIBUTED PRESENTATIONS

- "Towards Universal Authentication in the IoT Ecosystem."
Sanket Goutam, Amir Rahmati. Graduate Research Day, Stony Brook University. 2024.

- "Privacy-preserving API Frameworks for Samsung Knox SDK."
Sanket Goutam. Samsung Research America, Mountain View, CA. 2023.

- "Erebus: Access Control for Augmented Reality Systems."
Sanket Goutam, Yoonsang Kim, Amir Rahmati, Arie Kaufman. 32nd USENIX Security Symposium, Anaheim, California. 2023.

- "Designing an Access Control Framework for AR/VR Systems."
Sanket Goutam, Yoonsang Kim, Amir Rahmati, Arie Kaufman. Graduate Research Day, Stony Brook University. 2022.

- "Hestia: Simple Least Privilege Network Policies for Smart Homes".
Sanket Goutam, William Enck, Brad Reaves. 12th ACM Conference on Security and Privacy in Wireless and Mobile Networks, Miami, FL. 2019.

Fellowships & Awards

FELLOWSHIPS

2021 -'24	**Excellence Fellowship**, Stony Brook University
2022 -'24	**Inclusive Computing Fellowship**, Dept. of Computer Science, Stony Brook University

CONFERENCE GRANTS

2024	**Student Support Grant**, NDSS Symposium
2023	**Student Grant**, USENIX Security Symposium
	Student Travel Grant, IEEE Security & Privacy Symposium (S&P)
2021	**NSF Student Conference Award**, ACM CCS
2019	**Student Travel Grant**, ACM WiSec

HONORS

2020, '21	**Recognition Awards for Contributions to High-Impact Projects**, HPE Aruba Networking
2015	**Regional Qualifiers**, ACM International Collegiate Programming Contest (ACM ICPC)

Professional Service

ARTIFACT EVALUATION COMMITTEE

2025	**USENIX Security**, Reviewer
2024	**USENIX Security, ACM CCS, NDSS**, Reviewer
2023	**USENIX Security, ACM CCS**, Reviewer

PEER REVIEWS

2024	**IEEE Internet of Things (IoT) Journal, Journal of Computer Security (JCS), Workshop on CPS & IoT Security and Privacy (CPSIoTSec)**, Sub-Reviewer
	IEEE Security & Privacy Symposium (S&P) Poster Jury, Reviewer
2023	**IEEE Transactions on Dependable and Secure Computing (TDSC)**, Sub-Reviewer
2022	**USENIX Security**, Sub-Reviewer
2018	**ISOC Network and Distributed Systems Symposium (NDSS)**, Sub-Reviewer

SERVICE AND OUTREACH

2024-25	**Computer Science Graduate Committee**, Graduate Student Representative	*SBU*
2023	**IEEE Security & Privacy Symposium (S&P)**, Student Volunteer	*California*
2022-24	**Pedagogy and Inclusivity Training for Computer Science TAs**, Fellow	*SBU*
2022-24	**WAC Lighting Foundation Invitational Science Fair**, Judge	*New York*
2022	**CSIRE Summer Research Program**, Reviewer	*SBU*

TEACHING EXPERIENCE

2022	**CSE508-Network Security**, Teaching Assistant	*SBU*
2021	**CSE331-Computer Security Fundamentals**, Teaching Assistant	*SBU*
2019	**CSC591-Privacy**, Teaching Assistant	*NCSU*
2019	**CSC591-Cellular Network Security**, Teaching Assistant	*NCSU*
2018	**CSC415-Software Security**, Teaching Assistant	*NCSU*

Relevant Skills

Programming : Python, C, C++, C#, LaTeX
Tools & Frameworks : Docker, certbot, ANTLR, spaCy, ptrace, gdb, Git, OpenFlow, Ryu, Wireshark, protobuf, gRPC
System Administration : Linux, Android, OpenWRT, Raspberry Pi, Windows
Methodologies : Security Threat Modeling (STRIDE, LINDDUN), System Design, Applied Cryptography, Program Analysis, Network Analysis, Qualitative Analysis
Memberships : ACM, IEEE