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

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

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

Book Chapters

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

Patents

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

Presentations

Invited Talks

- Spring 2024. *Security in AR/VR Systems*. Invited Guest Lecture: Introduction to Virtual Reality (CSE366), Host: Dr. Saeed Boorboor, Stony Brook University.

- Summer 2018. *Choosing a STEM Career*. Silicon Valley Outreach Program for K-12 Students, San Jose, CA.

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

Contributed Presentations

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

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

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

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

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

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
2023	**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 Activities

ARTIFACT EVALUATION COMMITTEE

2023-25	**USENIX Security Symposium (USENIX Security)**, Reviewer
2024	**ISOC Network and Distributed Systems Symposium (NDSS)**, Reviewer
2023-24	**ACM Conference on Computer and Communications Security (ACM CCS)**, Reviewer

PEER REVIEWS

2024	**Journal of Computer Security (JCS)**, Sub-Reviewer
2024	**Workshop on CPS & IoT Security and Privacy (CPSIoTSec)**, Sub-Reviewer
2024	**IEEE Security & Privacy Symposium (S&P) Poster Jury**, Reviewer
2023	**IEEE Transactions on Dependable and Secure Computing (TDSC)**, Sub-Reviewer
2022	**USENIX Security Symposium (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
Utilities : Docker, certbot, ANTLR, spaCy, ptrace, gdb, Git, OpenFlow, Ryu, Wireshark, protobuf, gRPC
Systems : Linux, Android, OpenWRT, Raspberry Pi, Windows
Other : Security Threat Modelling (STRIDE, LINDDUN), Public Speaking, Academic Writing
Memberships : ACM, IEEE