

# Soundarya Ramesh

## CONTACT

---

E-mail : [sramesh@comp.nus.edu.sg](mailto:sramesh@comp.nus.edu.sg)

Web : <https://soundaryaramesh.github.io>

## EDUCATION

---

**National University of Singapore**

Ph.D. Student, Computer Science

Advisor : Jun Han and Chan Mun Choon

Research Interests : Sensor Security, Acoustic and Wireless Sensing

*Aug 2018 – Present*

*Current GPA : 4.92/5*

**National Institute of Technology Karnataka, India**

Bachelor of Technology in Information Technology

*Jul 2014 – May 2018*

*GPA : 9.01/10*

## CONFERENCE/WORKSHOP PUBLICATIONS

---

- *RampScope*: Ramp-level Localization of Shared Mobility Devices using Sidewalk Ramps.  
Jonghyuk Yun\*, Gyuyeon Kim\*, **Soundarya Ramesh**, Jun Han.  
*To appear in the Proceedings of the 24<sup>st</sup> Annual International Workshop on Mobile Computing Systems and Applications (HotMobile '23).*
- *TickTock*: Detecting Microphone Status in Laptops Leveraging Electromagnetic Leakage of Clock Signals.  
**Soundarya Ramesh**, Ghazali Hadi, Sihun Yang, Chan Mun Choon, Jun Han.  
*To appear in the proceedings of the 2022 ACM SIGSAC Conference on Computer and Communications Security (ACM CCS '22).*
- Acoustics to the Rescue: Physical Key Inference Attack Revisited.  
**Soundarya Ramesh**, Rui Xiao, Anindya Maiti, Jong Taek Lee, Harini Ramprasad, Ananda Kumar, Murtuza Jadliwala, Jun Han.  
*In the proceedings of 30<sup>th</sup> USENIX Security Symposium (USENIX Security '21).*
- Listen to Your Key: Towards Acoustics-based Physical Key Inference.  
**Soundarya Ramesh**, Harini Ramprasad, Jun Han.  
*In the Proceedings of the 21<sup>st</sup> Annual International Workshop on Mobile Computing Systems and Applications (HotMobile '20).*
- *SoundUAV*: Towards Delivery Drone Authentication via Acoustic Noise Fingerprinting.  
**Soundarya Ramesh**, Thomas Pathier, Jun Han.  
*In the Proceedings of the 5<sup>th</sup> ACM Workshop on Micro Aerial Vehicle Networks, Systems, and Applications (DroNet '19).*
- Neuro-Symbolic Execution: Augmenting Symbolic Execution with Neural Constraints.  
Shen Shiqi, Shweta Shinde, **Soundarya Ramesh**, Abhik Roychoudhury, Prateek Saxena.  
*In the Proceedings of the 26<sup>th</sup> Network and Distributed System Security Symposium (NDSS '19).*

## INDUSTRY CONFERENCES

---

- *RollBack* - A New Time-Agnostic Replay Attack Against the Automotive Remote Keyless Entry Systems.  
Levente Csikor, Hoon Wei Lim, Jun Wen Wong, **Soundarya Ramesh**, Rohini Poolat Parameswarath, Chan Mun Choon.  
**Black Hat USA '22.**

## POSTERS

---

- *SoundUAV: Fingerprinting Acoustic Emanations for Delivery Drone Authentication.*  
**Soundarya Ramesh**, Thomas Pathier, Jun Han.  
*In the Proceedings of 17<sup>th</sup> Annual International Conference on Mobile Systems, Applications, and Services (MobiSys '19).*

## RESEARCH EXPERIENCES

---

- |  |                |
|--|----------------|
| <b>Google, Mountain View</b>   | May – Aug 2022 |
| Research Intern working on Audio Sensing for Augmented Reality (AR) Glasses<br>Hosts : Chiong Lai, Mathieu Parvaix (co-host) |                |
| <b>National University of Singapore</b>  | May – Dec 2017 |
| Research Intern in System Security Lab<br>Host : Prateek Saxena  |                |
| <b>Indian Institute of Science</b>   | May – Jun 2016 |
| Research Intern in Cryptography and Information Security Lab<br>Host : Arpita Patra  |                |

## HONORS AND AWARDS

---

- |   |                |
|---|----------------|
| • <i>NUS School of Computing Dean's Graduate Research Achievement Award</i>     | 2022           |
| • <i>Placed on the Honor List of Student Tutors for Excellence in Teaching</i>  | 2022           |
| • <i>Google PhD Fellowship (under Mobile Computing research area)</i>           | 2021 – Present |
| • <i>Graduate Research Fellowship, National University of Singapore</i>         | 2018 – 2022    |
| • <i>MobiSys, HotMobile Student Travel Grant</i>                                | 2019, 2020     |
| • <i>MobiSys Best Poster Runner-Up Award</i>                                    | 2019           |
| • <i>Research Forum Award at the Deep Learning &amp; Security Workshop, NUS</i> | 2017           |
| • <i>Indian Academy of Sciences Fellowship</i>                                  | 2016           |

## INVITED TALKS

---

- |  |          |
|--|----------|
| • Listen to Your Key: Towards Acoustics-based Physical Key Inference<br>Music Technology Department, Capital University, Columbus, OH, USA | Oct 2020 |
|--|----------|

## TEACHING EXPERIENCE

---

- |  |                      |
|--|----------------------|
| • Teaching Assistant for CS4222 Wireless Networks          | Spring 2022          |
| • Teaching Assistant for CS3103 Computer Networks Practice | Fall 2021            |
| • Teaching Assistant for CS3235 Computer Security          | Spring 2020          |
| • Teaching Assistant for CS5476 IoT Security               | Fall 2019, Fall 2020 |

## PROFESSIONAL SERVICE

---

### Student Reviewing Member

- Master of Computing Admission in the School of Computing, NUS (2022)

## External Reviewer

- ACM Conference on Embedded Networked Sensor Systems (**SenSys 2020, 2021, 2022**).
- ACM/IEEE International Conference on Internet of Things Design and Implementation (**IoTDI 2020, 2021, 2022**).
- IEEE International Conference on Distributed Computing Systems (**ICDCS 2020, 2021, 2022**).
- IEEE International Conference on Communication Systems and Networks (**COMSNETS 2020, 2021**).
- ACM Workshop on Mobile Computing Systems and Applications (**HotMobile 2022**).
- ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (**BuildSys 2019**).
- ACM Conference on Security and Privacy in Wireless and Mobile Networks (**WiSec 2019**).
- ACM International Conference on Mobile Systems, Applications, and Services (**MobiSys 2019**).