# Raveen Wijewickrama


**Location** San Antonio, Texas USA

**Email** raveen.wijewickrama@utsa.edu
**Webpage** wijewick.com/raveen
**Linkedin** in/raveenwijewick
**Google Scholar** 7T6nHKgAAAAJ


## Education

**2018-2024** **PhD in Computer Science** - The University of Texas at San Antonio, Texas, USA
Dissertation: Friend or Foe? Evaluating Sensor-Based Information Side-Channels and Covert Communication Channels on Modern Wearable Devices (Advisor: Dr. Murtuza Jadliwala)

**2016-2017** **MS in Computer Science** - Wichita State University, Kansas, USA

**2012-2015** **BS in Computer Science** - Asia Pacific Institute of Information Technology (APIIT), Sri Lanka

## Work Experience

**Sept 2024 - Present** ScooterLab, The University of Texas at San Antonio
***Vehicle and Sensing Systems Development Lead / Post Doctoral Researcher (Full Time)***

- A National Science Foundation's (NSF) CISE Community Infrastructure (CCRI) program funded project. Award Number: 2234516.
- Leading the vehicle & sensing development of the micromobility (e-scooter) testbed and crowd-sensing infrastructure at ScooterLab, managing two other graduate students.
- Designing and integrating sensory hardware (motion, temperature, pressure, humidity) and developing software.
- Leading the deployment and management of 30 sensor-equipped e-scooters (scaling up to 100 e-scooters), facilitating large-scale micromobility and urban sensing research.

**Aug 2020 - Aug 2024** ScooterLab, The University of Texas at San Antonio
***Vehicle and Sensing Systems Development Lead / Research Assistant (Part Time)***

- A National Science Foundation's (NSF) CISE Community Infrastructure (CCRI) program funded project. Award Numbers: 2016717, 2234516.
- Engineered the integration of a Raspberry Pi-based sensor box prototype with an e-scooter during project feasibility stage which aided in achieving a 1.9M the follow up NSF grant.

**Aug 2018 - Aug 2024** SPriTELab, The University of Texas at San Antonio
***Research Assistant (Part Time)***

- AI-Generated Content: Analyzed package hallucinations in code-generating LLMs; open-source models hallucinate 4× more than commercial models, with 19.7% of generated packages being fictitious [2].
- AI-Generated Art: Conducted a large-scale human-subject study analyzing how users infer prompts from images, evaluating inference accuracy using perceptual similarity metrics [5].
- E-Scooter Safety: Conducted an empirical field study using wearable-based crowd-sensing to quantify pedestrian safety risks from e-scooters, identifying spatial and temporal factors contributing to unsafe encounters [7].

- Privacy & Security of Mobile Apps: Evaluated Android e-scooter rental apps for privacy risks, uncovering data collection practices, compliance gaps (CCPA & GDPR), and cryptographic vulnerabilities in over 85% of apps [10].
- Wearable Sensor Privacy: Investigated privacy and security risks in wearable devices (e.g., smartwatches, smart headphones) using data from sensors such as accelerometers, gyroscopes, and microphones. The investigation involved human subject research to collect and analyze real-world sensor data [11, 9, 6].
- Mentoring & Advising: Supervised and mentored graduate students on research projects involving AI-generated art, micromobility safety, and wearable privacy.

**Jan 2023 - Aug 2023** Department of Computer Science, The University of Texas at San Antonio
***Graduate Teaching Assistant***

- Courses: Systems Programming, Principles of Cybersecurity.

**June 2022 - Aug 2022** Phylum Inc.
***Engineering Intern - Research***

- Examined JavaScript obfuscation and detection, with a specific focus on Web Assembly (WASM) and conducted initial WASM detection analyses on a dataset of 500k NPM packages and detected 15k packages containing WASM.

**May 2017 - Dec 2017** SPriTELab, Wichita State University
***Research Assistant***

- Investigated motion sensor based handwriting inference using smartwatches.

**Aug 2016 - Dec 2017** Department of Computer Science, Wichita State University
***Graduate Teaching Assistant***

- Courses: Programming Paradigms, Object Oriented Programming, Programming Language Concepts, Operating Systems, Introduction to Database Systems

## Projects

**Jan 2024 - Present** Independent Project
***Backend Engineer***

- Developing the backend for a generative AI-based platform using Node.js and MariaDB, designing RESTful APIs, optimizing database performance, and collaborating with a small team to build the MVP

## Skills

- *Python* (Pandas, Numpy, Scipy, Scikit-learn, Pytorch, |TensorFlow) *Java* (Android) | HTML, PHP, JavaScript (Node.js), SQL | Linux, Android, Git, Apache, Nginx | TCP/IP, DNS, VPN | Hugging Face, LLM Fine-Tuning
- Mobile/Wearable/IoT Sensing | Machine Learning (data analysis, model development, and implementation), Human Subject Research

## Research Interests

- Micromobility, Mobile Sensing, Wearable Systems, Privacy and Security, Human-Computer Interaction, AI-Generated Content

## Awards

- Received ACM student travel grant for 12th ACM Conference on Security and Privacy in Wireless and Mobile Networks, 2019.
- Received ACM student travel grant for 15th ACM Conference on Security and Privacy in Wireless and Mobile Networks, 2022.

## Services and Affiliations

- Poster Session Co-Chair - 2nd NSF AI Spring School at University of Texas at San Antonio (UTSA), 2025.
- Web Chair - 15th ACM Conference on Security and Privacy in Wireless and Mobile Networks, 2022.
- Replicability Committee Member - 15th ACM Conference on Security and Privacy in Wireless and Mobile Networks, 2022.

## Mentoring & Research Advising

- A.H.M Nazmus Sakib - PhD student in Computer Science at UTSA.
- Sahan Randika - PhD student in Computer Science at UTSA.
- Aaditya Khant - PhD student in Computer Science at UTSA.
- Christian Bargraser - BS/MS in Computer Science from UTSA, 2023.
- Josh Klopfenstein - BS in Computer Science from UTSA, 2022.
- Oscar Ortiz - BS in Computer Science from UTSA, 2020.

## Press Coverage

**2024** The Register - AI code helpers just can't stop inventing package names.

**2024** KSAT - UTSA goes wheels down with additions to electric scooter fleet.

**2023** KSAT - UTSA researchers receive 1.7 million grant to deploy data collecting e-scooters.

**2021** Business Insider - How researchers at the University of Texas at San Antonio are helping the fast-growing city mitigate traffic and make its roads safer.

**2021** San Antonio Express News - UTSA researchers turning scooters into smart data collectors.

## Research Publications


[1] U. Khan, R. Wijewickrama, M. B. Ashan, A. N. Sakib, K. Trinh, C. Duthie, et al. "ScooterLab: A Programmable and Participatory Sensing Research Testbed using Micromobility Vehicles". In: *IEEE International Conference on Pervasive Computing and Communications (PerCom) Demo Session*. 2025.

[2] J. Spracklen, R. Wijewickrama, A. Sakib, A. Maiti, B. Viswanath, and M. Jadliwala. "We have a package for you! a comprehensive analysis of package hallucinations by code generating llms". In: *USENIX Security Symposium* (2025).

[4] C. Sendner, J. Stang, A. Dmitrienko, R. Wijewickrama, and M. Jadliwala. "MirageFlow: A New Bandwidth Inflation Attack on Tor". In: *Network and Distributed System Security (NDSS) Symposium 2024*. Jan. 2024.

[6] R. Wijewickrama, S. A. Dohadwalla, A. Maiti, M. Jadliwala, and S. Narain. "SkinSense: Efficient vibration-based communications over human body using motion sensors". In: *Internet of Things* (2023).

[7] N. Vinayaga-Sureshkanth, A. Maiti, M. Jadliwala, R. Wijewickrama, and G. P. Griffin. "Impact of E-Scooters on Pedestrian Safety: A Field Study Using Pedestrian Crowd-Sensing". In: *IEEE PerCom Workshop on Sensing Systems and Applications using Wrist Worn Smart Devices (WristSense)*. 2022.

[8] N. Vinayaga-Sureshkanth, R. Wijewickrama, A. Maiti, and M. Jadliwala. “An Investigative Study on the Privacy Implications of Mobile E-scooter Rental Apps”. In: *Proceedings of the 15th ACM Conference on Security and Privacy in Wireless and Mobile Networks*. 2022.

[9] R. Wijewickrama, A. Maiti, and M. Jadliwala. “Write to know: on the feasibility of wrist motion based user-authentication from handwriting”. In: *Proceedings of the 14th ACM Conference on Security and Privacy in Wireless and Mobile Networks*. 2021.

[10] N. Vinayaga-Sureshkanth, R. Wijewickrama, A. Maiti, and M. Jadliwala. “Security and Privacy Challenges in Upcoming Intelligent Urban Micromobility Transportation Systems”. In: *ACM Workshop on Automotive and Aerial Vehicle Security (AutoSec)*. 2020.

[11] R. Wijewickrama, A. Maiti, and M. Jadliwala. “deWristified: handwriting inference using wrist-based motion sensors revisited”. In: *Proceedings of the 12th Conference on Security and Privacy in Wireless and Mobile Networks*. 2019.

## Arxiv Preprints

[3] S. Seidenberger, M. Beret, R. Wijewickrama, M. Jadliwala, and A. Maiti. “NinjaDoH: A Censorship-Resistant Moving Target DoH Server Using Hyperscalers and IPNS (Under Review)”. In: *preprint arXiv:2411.02805* (2024).

[5] K. Trinh, J. Spracklen, R. Wijewickrama, B. Viswanath, M. Jadliwala, and A. Maiti. “Promptly Yours? A Human Subject Study on Prompt Inference in AI-Generated Art (Under Review)”. In: *preprint arXiv:2410.08406* (2024).

## Referees

**Name** Murtuza Jadliwala
**Company** The University of Texas at San Antonio, San Antonio, USA.
**Position** Associate Professor
**Contact** murtuza.jadliwala@utsa.edu

**Name** Anindya Maiti
**Company** University of Oklahoma, Norman, OK, USA.
**Position** Assistant Professor
**Contact** am@ou.edu