

CV Date	29/03/2025
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Part A. PERSONAL INFORMATION

First name	Rathnayaka Mudiyansele Vinuri Gayanthika		
Family name	Bandara		
Gender (*)	Female	Birth date (dd/mm/yyyy)	30/01/1996
Social Security, Passport, ID number	Y9143727E		
email	vinuri.bandara@imdea.org		URL Web
			https://vinuribandara.github.io/
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-6514-9813		

A.1. Current position

Position	Predoctoral Researcher		
Initial date	01/08/2022		
Institution	IMDEA Networks Institute		
Department/Center	Internet Analytics Group		
Country	Madrid, Spain	Teleph. number	642478474
Key words	Cybersecurity, Information Technology and Data Processing		

A.2. Previous positions (research activity interruptions, art. 45.2.b))

Period	Position/Institution/Country/Interruption cause
August 2019 - Present	Member / Bug Zero / Sri Lanka
August 2019 - March 2020	Research intern / Sustainable Computing Research Group, University of Colombo School of Computing / Sri Lanka
June 2021 – August 2021 May 2020 – August 2020	Intern / Google Summer of Code
December 2019 - January 2020	Mentor / Google Code-in

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ph.D. Program in Telematic Engineering	Universidad Carlos III de Madrid, Spain	2024
M.Sc. Software and Systems	Universidad Politécnica De Madrid, Spain	2023
B.Sc. Hons. Information Systems	University of Colombo School of Computing, Colombo, Sri Lanka	2022
Diploma in Computer System Design	National Institute of Business Management (NIBM), Sri Lanka	2016

Part B. CV SUMMARY

Since 2022, Vinuri Bandara has served as a predoctoral researcher at the IMDEA Networks Institute under the guidance of Dr. Narseo Vallina-Rodriguez, an ACM Senior Member and Ramon y Cajal Fellow. She completed her M.Sc. degree in Software and Systems at Universidad Politécnica de Madrid (UPM) in 2023, following her B.Sc. in Information Systems

at the University of Colombo School of Computing, Sri Lanka, in 2022. In 2019, while working with the Sustainable Computing Research Group (ScoreLab) in Sri Lanka, Vinuri played a pivotal role as a founding member of BugZero, the largest bug-bounty program in Sri Lanka.

Due to her outstanding academic achievements in both her B.Sc. and M.Sc., Vinuri received the Best Academic Performance Awards for both degrees. Her M.Sc. dissertation, titled "In-depth Analysis of the Android Supply Chain: Vendor Customizations on Critical Networking Components," received honorable mentions from the evaluation jury and was later awarded the SISTEDES Best Master's Thesis Award (Premio al Mejor TFM) 2024, recognizing it as the best in software engineering across Spain. This dissertation represents the first extensive study aimed at characterizing the impact of vendor customizations on the Android networking stack, addressing a critical research gap by delving into the often overlooked area of vendor-led customizations and their implications on secure communication capabilities.

Most recently, her academic excellence and potential were recognized through her selection for the highly competitive Formación de Profesorado Universitario (FPU) national grant, awarded by the Spanish Ministry of Universities. Additionally, she was awarded the Comunidad de Madrid (CAM) Predoctoral Fellowship, further acknowledging her merits at the regional level.

Her Ph.D. research falls in the areas of cybersecurity and software engineering. During her tenure at IMDEA Networks, she has already acquired extensive research and software development expertise, contributing as a valuable research group member of both EU H2020 and Spanish National Projects, being responsible for developing cutting-edge program analysis methods. This complements Vinuri's prior experience as a research intern at ScoreLab (University of Colombo, Sri Lanka), where she engaged in various projects, conducting large-scale measurements of software vulnerabilities and blockchain systems. Additionally, she collaborated with the BLUES group, led by Dr. Serge Egelman at the International Computer Science Institute at UC Berkeley, for her final B.Sc. thesis.

Vinuri has already showcased her research skills by co-authoring publications in international peer-reviewed conferences and journals. Notably, she served as the leading author for a paper presented at IEEE SCAM 2020, which empirically investigates how maintainers of open-source JavaScript projects address vulnerabilities. Furthermore, her contributions extended to a publication in IEEE Transactions on Dependable and Secure Computing in 2023 (Q1), presenting a methodology aimed at enhancing transparency and triaging Android's custom permission landscapes. Most recently, she co-authored "Beneath the Surface: An Analysis of OEM Customizations on the Android TLS Protocol Stack," which has been accepted to appear at the IEEE European Symposium on Security and Privacy 2025. This work presents the first large-scale study of Android vendor customizations to the protocol stack, analyzing their implications for user security and the integrity of secure communications.

Following the completion of her B.Sc., Vinuri supervised undergraduate student research projects at the University of Colombo and mentored junior teams for Google Code-in 2019. She has contributed to multiple open-source and tech-transfer projects, including the CommunityDict vocabulary platform and DNSTool-CLI, which introduced automation for DNS scan feed downloads. Her international recognitions include the Huawei 'Seeds for the Future' Scholarship, awarded to the top 10 computer science undergraduates in Sri Lanka, which provided her with exposure to global digital innovation ecosystems and deepened her perspective on secure communication networks.

Selected awards and distinctions:

- **CAM Predoctoral Fellowship 2024** (Awarded by the Comunidad de Madrid)
- **FPU Predoctoral Fellowship 2023** (Awarded by the Ministry of Science, Innovation and Universities, Spain) (declined due to incompatibility with CAM grant)

- **Best TFM (Trabajo fin de Máster) award** (Software Engineering and Software Development Technologies Society (SISTEDES), Spain)
 - Awarded to the M.Sc. thesis entitled: "In-depth analysis of the Android supply chain: vendor customizations on critical networking components"
 - Prize fund of €600
- **Best academic record in M.Sc in software and systems** (Universidad Politécnica De Madrid)
 - Prize fund of €1,500 from Alamo Consulting
- **Matrícula de honour for M.Sc. thesis** entitled: "*In-depth analysis of the Android supply chain: vendor customizations on critical networking components*"
- **Recipient of the international SURI Fellowship 2023** at EPFL (Virtual participation, due to unforeseen immigration circumstances)
- **Best academic performance for B.Sc in Software and systems** (University of Colombo School of Computing)
 - **IFS Academic Excellence Award** for the best performance in a 4 year degree
- **Recipient of the 'Seeds for the Future' scholarship** by Huawei and Ministry of ICT and Higher Education Technology and Innovation, Sri Lanka

Part C. RELEVANT MERITS

C.1. Most important publications in books and journals with "peer review" and in conferences

[1.] **Beneath the Surface: An Analysis of OEM Customizations on the Android TLS Protocol Stack**, Vinuri Bandara, Stijn Pletinckx, Ilya Grishchenko, Christopher Kruegel, Giovanni Vigna, Juan Tapiador, Narseo Vallina-Rodriguez
To appear in IEEE European Symposium on Security and Privacy (Euro S&P) 2025
(Camera-ready in preparation)

[2.] **Mules and Permission Laundering in Android: Dissecting Custom Permissions in the Wild**, Julien Gamba, Álvaro Feal, Eduardo Blázquez, Vinuri Bandara, Abbas Razaghpanah, Juan Tapiador, Narseo Vallina-Rodríguez
IEEE Transactions on Dependable and Secure Computing. June 2023

DOI: [10.1109/TDSC.2023.3288981](https://doi.org/10.1109/TDSC.2023.3288981)

[3.] **Demo: Large Scale Analysis on Vulnerability Remediation in Open-source JavaScript Projects**, Vinuri Bandara, Thisura Rathnayake, Nipuna Weerasekara, Charith Elvitigala, Kenneth Thilakarathna, Primal Wijesekera, Chamath Keppitiyagama

ACM Conference on Computer and Communications Security (CCS), 2021

DOI: [10.1145/3460120.3485357](https://doi.org/10.1145/3460120.3485357)

[4.] **Fix that Fix Commit: A real-world remediation analysis of JavaScript projects**, Vinuri Bandara, Thisura Rathnayake, Nipuna Weerasekara, Charith Elvitigala, Kenneth Thilakarathna, Primal Wijesekera, Chamath Keppitiyagama
IEEE 20th International Working Conference on Source Code Analysis and Manipulation (SCAM), 2020

DOI: [10.1109/SCAM51674.2020.00027](https://doi.org/10.1109/SCAM51674.2020.00027)

C.2. Congress.

[1.] **SISTEDES, 2024**: Invited attendee to receive the Best Master's Thesis Award (Premio al Mejor TFM) from the Software Engineering and Software Development Technologies Society (SISTEDES).

[2.] **ACM Conference on Computer and Communications Security (CCS), 2021:**
Leading author of accepted demo, “Demo: Large Scale Analysis on Vulnerability Remediation in Open-source JavaScript Projects”.

[3.] **IEEE Source Code Analysis and Manipulation conference (SCAM), 2020:**
Oral presentation of the paper “Fix that Fix Commit: A real-world remediation analysis of JavaScript projects” - Virtual conference due to Covid-19.

C.3. Projects or research lines in which you have participated.

European Projects:

Project: *Enhancing Digital Security, Privacy and Trust in Software (TrustAware)* - EU H2020. (Contract 101021377). May 2021 - May 2024. EUR 4.6M. (PI: Dr. Narseo Vallina-Rodriguez)

ROLE: *Member of the research team; I surveyed state-of-the-art techniques to identify the suitable dynamic analysis techniques and participated in the development of the runtime analysis component. Developed scalable methods for detecting privacy and security threats on mobile applications using static and dynamic analysis techniques, and for analysing the security implications of Android core components.*

National Projects:

Project: *Methods and techniques to characterize supply chain threats in SW (PARASITE)* - Agencia Española de Investigación. (PID2022-143304OB-I00). DEC 2023 - NOV 2026. EUR 266K. (PI: Dr. Narseo Vallina-Rodriguez & Dr. Guillermo Suarez-Tangil).

ROLE: *Member of the research team; My PhD dissertation will be conducted in the context of this project, investigating and characterising vendor customizations in major platforms and their impact on end-users security and privacy, within the regulatory context of the EU Cyber Resilience Act..*

C.4. Participation in technology/knowledge transfer activities and exploitation of results.

[1.] **BugZero** – *Member (2019–present)*

Crowdsourced bug bounty platform connecting 750+ freelance researchers from 40+ countries with organizations worldwide.

Role: Developed core components including a report plagiarism detection tool, hacker reputation and ranking algorithms, success rate tracking, and CVSS-based scoring for bug reports.

[2.] **Sequza** – *Co-developer (B.Sc. final project)*

Platform for vulnerability remediation in large-scale software projects, developed in collaboration with ScoreLab and the BLUES group (UC Berkeley).

Resulted in two publications: “Fix that Fix Commit” and “Demo: Large Scale Analysis on Vulnerability Remediation in Open-source JavaScript Projects.”

Additional Open-Source Contributions:

- **CommunityDict** – Community-driven vocabulary development tool. (*GitHub: CommunityDict*)
- **DNSTool-CLI** – CLI-based utility to automate DNS scan feed downloads (cron/Airflow integration). (*GitHub: DNSTool-CLI*)