

# Aniketh Girish

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**Biography:** I'm a Postdoctoral Researcher at the IMDEA Networks Institute in Madrid, Spain. My research sits at the intersection of privacy, empirical network measurement, and platform governance, with a focus on uncovering hidden data flows and cross-platform tracking in modern smart ecosystems. I have exposed covert tracking vectors—from localhost-based web-to-app tracking used by Meta and Yandex to wireless-scanning SDKs that infer location and unauthorized local-network data flows in smart homes. My measurement-driven research has influenced platform practices (e.g., Android 16's local-network permission), informed EU data protection authorities. It was also cited by Spain's Prime Minister in discussions that led to a Congressional inquiry into Meta's localhost-based tracking practices. I publish in top-tier venues including PETS, IMC, and USENIX Security. My work has also been covered internationally, including by The Washington Post, Wired, CBC News, El País, and 100+ other outlets.

## Education

2020-2025

- **Ph.D. Telematics Engineering** IMDEA Networks Institute and University of Carlos III Madrid (UC3M), Madrid, Spain. (*Graduated with Sobresaliente Cum Laude*)  
*Dissertation: Understanding Interconnected Abuse in Consumer Smart Device Ecosystems.*  
*Advisor: Prof. Narseo Vallina-Rodriguez (IMDEA Networks, AppCensus) & Dr. Srdjan Matic (IMDEA Softwares)*  
My dissertation challenges the process-centric view of privacy controls by showing that privacy violations often stem from systemic interactions across digital ecosystems rather than isolated components. I ideated and carried out this work end-to-end, developing multi-vantage measurement approaches that revealed cross-device and cross-platform tracking pathways and exposed how data moves through unmonitored channels in modern smart ecosystems. My dissertation drove platform-level protections such as Android 16's local-network permission, prompted privacy fixes from Google, TP-Link, Philips, and over 20 IoT vendors, and attracted global attention with 100+ news and media reports.

2020-2021

- **M.Sc. Computer Security.** University of Carlos III Madrid (UC3M), Madrid, Spain.  
*Dissertation: ImPosTer: Towards an extensible privacy analysis framework for Smart Home ecosystem.*

2016-2020

- **B.Tech. Computer Science and Engineering.** Amrita Vishwa Vidyapeetham, Amritapuri, Kerala, India  
*Dissertation: Empirical Analysis of Adaptive Bitrate Streaming over QUIC.*  
Semester abroad: Ben-Gurion University of the Negev, Israel (Summer 2018)

## Professional Experience

10/2025-Now

- **Postdoctoral Researcher.** IMDEA Networks Institute, Madrid, Spain.  
*Advisor: Prof. Narseo Vallina-Rodriguez*

2024

- **Visiting Researcher.** Khoury College, Northeastern University, Boston, MA, USA  
*Advisor: Prof. David Choffnes*

2018-2019

- **Research Intern.** Rochester Institute of Technology, USA.  
*Advisor: Prof. Taejoong (Tijay) Chung*

2019

- **Research Associate.** Internet Initiative Japan, Tokyo (2 months)  
*Advisors: Dr. Hajime Tazaki*

## Research Publications

### Conference Proceedings

- 1 T. Vlummens\*, **A. Girish**, N. Weerasekara, F. Zuiderveen Borgesius, G. Acar, and N. Vallina Rodriguez, "Bridges to self: Silent web-to-app tracking on mobile via localhost," in *Proceedings of the 35th USENIX Security Symposium*, 2026.
- 2 **A. Girish**, J. Reardon, J. Tapiador, S. Matic, and N. Vallina-Rodriguez, "Your signal, their data: An empirical privacy analysis of wireless-scanning sdks in android," in *Proceedings on Privacy Enhancing Technologies (PoPETs)*, 2025.  URL: <https://arxiv.org/abs/2503.15238>.
- 3 N. Alomar, J. Reardon, **A. Girish**, N. Vallina-Rodriguez, and S. Egelman, "The effect of platform policies on app privacy compliance: A study of child-directed apps," in *Proceedings on Privacy Enhancing Technologies (PoPETs)*, 2025.

- 4 A. Girish\*, T. Hu\*, V. Prakash, D. Dubois, J. S. Matic, D. Y. Huang, S. Egelman, J. Reardon, J. Tapiador, D. Choffnes, and N. Vallina-Rodriguez, "In the room where it happens: Characterizing local communication and threats in smart homes," in *Proceedings of the 23rd ACM Internet Measurement Conference*, 2023. DOI: 10.1145/3618257.3624830.
- 5 A. Girish, V. Prakash, S. Egelman, J. Reardon, J. Tapiador, D. Y. Huang, S. Matic, and N. Vallina-Rodriguez, "Challenges in inferring privacy properties of smart devices: Towards scalable multi-vantage point testing methods," in *Proceedings of the 3rd International CoNEXT Student Workshop*, ser. CoNEXT-SW '22, 2022. DOI: 10.1145/3565477.3569148.
- 6 A. Girish, J. Tapiador, S. Matic, and N. Vallina-Rodriguez, "Towards an extensible privacy analysis framework for smart homes," in *Proceedings of the 22nd ACM Internet Measurement Conference*, 2022. DOI: 10.1145/3517745.3563023.
- 7 H. Lee, A. Girish, R. van Rijswijk-Deij, T. Kwon, and T. Chung, "A longitudinal and comprehensive study of the DANE ecosystem in email," in *29th USENIX Security Symposium (USENIX Security 20)*, 2020. URL: <https://www.usenix.org/conference/usenixsecurity20/presentation/lee-hyeonmin>.

## Journal Articles

- 1 K. Hageman, Á. Feal, J. Gamba, A. Girish, J. Bleier, M. Lindorfer, J. Tapiador, and N. Vallina-Rodriguez, "Mixed signals: Analyzing software attribution challenges in the android ecosystem," *IEEE Transactions on Software Engineering*, 2023. DOI: 10.1109/TSE.2023.3236582.

\* Co-first authors.

## Research Awards and Honors

- 2022  **Traffic Measurement and Analysis (TMA)**. Best poster and presentation award

## Invited Talks

- |      |                                                                                                                                                                                                                                                 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2025 |  <b>Ad-Filtering Dev Summit</b> : Covert Web-to-App Tracking via Localhost on Android.<br>Location: Limassol, Cyprus                                         |
|      |  <b>XIX RediMadrid Conference</b> : Your Signal, Their Data: An Empirical Privacy Analysis of Wireless-scanning SDKs in Android.<br>Location: Madrid, Spain  |
|      |  <b>IETF 123 (PEARL)</b> : Covert Web-to-App Tracking via Localhost on Android.<br>Location: Madrid, Spain                                                   |
| 2024 |  <b>RIPE 89 Plenary</b> : In the Room Where It Happens – Characterizing Local Communication and Threats in Smart Homes.<br>Location: Prague, Czech Republic  |
|      |  <b>XIX RediMadrid Conference</b> : In the Room Where It Happens – Characterizing Local Communication and Threats in Smart Homes.<br>Location: Madrid, Spain |
| 2020 |  <b>BSides India</b> : Email security with DANE: Empirical Analysis of DANE for SMTP in the wild.<br>Location: Delhi, India                                  |
| 2019 |  <b>IIESoc RFCsWeLove</b> : DOH? DONUT! - The new internet according to RFC 8484<br>Location: GoJek office, Bangalore, India                                 |
|      |  <b>FOSSDEM'19</b> : DOH? DONUT! - The new internet according to RFC 8484<br>Location: Brussel, Belgium.                                                     |
|      |  <b>Akademy'19</b> : Strengthen Code Review Culture: rm -rf 'Toxic Behaviors<br>Location: Università degli Studi di Milano-Bicocca, Milan, Italy.            |
| 2018 |  <b>Akademy'18</b> : Strengthen Code Review Culture: rm -rf 'Toxic Behaviors<br>Location: Tu Wein, Austria.                                                  |
| 2017 |  <b>conf.KDE.in '17</b> : Object tracking using OpenCV and Qt<br>Location: IIT Guwahati, Assam, India.                                                       |

## Research Projects

### EU projects

Year(s)	Funding body	Award amount	Role	Project name	Award #
2021-2024	EU H2020	€4.6M	Researcher	Enhancing Digital Security, Privacy and Trust in Software (TRUST aWARE)	101021377

## Student Grants and Travel Awards

- 2023
- **Summer Research Institute on Security and Privacy EPFL (SURI)**, Student Travel Grant  
Location: Lausanne, Switzerland
  - **Interdisciplinary Summerschool on Privacy (ISP)**, Student Travel Grant  
Location: Nijmegen, The Netherlands
- 2022
- **Internet Measurement Conference (IMC)**, Student Travel Grant  
Location: Nice, France
  - **Traffic Measurement and Analysis (TMA)**, Student Travel Grant  
Location: Enschede, The Netherlands
- 2018
- **BGU Summer School Scholarship**, Ben-Gurion University of the Negev, Israel

## Open Source Contributions

- 2019
- **Google Code-In, Organization Administrator | KDE** Selected as Org Admin to mentor pre-university students in open-source contributions to KDE.
- 2018
- **Google Summer of Code | GNU Project/Wget2** Implemented DNS over HTTPS (DoH) protocol in Wget2, creating a new DNS resolution library with support for IPv4/IPv6 packets, EDNS, and DNS Service Discovery.
- 2017
- **Google Summer of Code | KDE/Krita** Developed a data sharing module for Krita desktop painting application, enabling secure client-server communication with encryption and spam prevention mechanisms.

## Advisory Roles

- 2022-2023
- **IoXt Privacy Compliance Program**. Actively participated in discussions and strategic planning for the world's first practical and scalable global security compliance program for IoT devices. Contributed insights that helped shape testing frameworks and privacy standards.
- 2016-2020
- **FOSS Club Mentor | Amrita Vishwa Vidyapeetham**. Mentored students in Free and Open Source Software development, conducted workshops on open software development.

## Selected Media Coverage

### Localmess Attack

- 06/2025
- **ArsTechnica** Meta and Yandex are de-anonymizing Android users' web browsing identifiers
  - **Washington Post** Meta found a new way to violate your privacy. Here's what you can do.
  - **El País** Este es el método oculto con el que Meta rastrea sin permiso la navegación en móviles (también en modo incógnito o con VPN)
  - **Sky News** Meta found 'covertly tracking' Android users through Instagram and Facebook
  - **CBC News** How Meta and Yandex track your browsing without permission
  - **The Register** Meta pauses mobile port tracking tech on Android after researchers cry foul

## Selected Media Coverage (continued)

### Wireless Beacons

- 07/2025
- **El País** How does your phone know so many private details? How thousands of apps are exploiting mysterious indoor location tracking
  - **La Sexta Noticias** ¿Alguna vez has pensado que el móvil te espía? Confirmado, apps te siguen usando WIFI, Bluetooth y datos aunque no actives el GPS

### IoT Security and Privacy

- 01/2024
- **Cadena Ser** Las amenazas a la seguridad y privacidad en los hogares inteligentes
- 11/2023
- **Onda Cero - Julia en la Onda** Los aparatos inteligentes en casa, ¿Son un peligro para nuestra intimidad?
  - **ABC** Espías en casa: la cara oscura de internet de las cosas en los 'hogares inteligentes'
  - **HiddenWires** New research reveals privacy and security threats in smart homes
- 10/2023
- **Wired** Los dispositivos de tu hogar inteligente te espían, advierte este informe
  - **CBS News Calgary** Are your home's smart devices leaking private data? Calgary researcher set to find out
  - **El País** 'People have no idea': How smart devices spy on us and reveal information about our homes

### References

Available on Request