

# Andrea Lacava

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Born in Rome (Italy), November 10th 1995. You can find a detailed list about my publications at my [Scopus author page](#) and into my [Google Scholar profile](#). Please refer also to my [Linkedin profile](#) for the recent activities.

## EDUCATION

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- Nov 2020 – Present    **Double PhD program** (5 years, English)  
*Northeastern University, Boston (MA), USA & University of Rome, Sapienza, Italy*  
Many works on enabling the Intelligence in Open Radio Access Networks [1, 2]
- Oct 2018 – Oct 2020    **MSc in Cybersecurity** - Laurea Magistrale in Cybersecurity (2 years, English)  
*University of Rome, Sapienza*  
**Final grade:** 110/110  
Thesis title: *Intrusion Detection System for Bluetooth Mesh Networks: data gathering and experimental evaluations* [3]
- Sept 2014 – Oct 2018    **BSc in Computer Engineering** - Laurea Triennale in Ingegneria Informatica  
*University of Rome, Sapienza*  
**Final grade:** 101/110

## ACTIVITIES

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- Sep 2022 – Feb 2023    **Teaching - Sapienza, University of Rome**  
Tutoring and teaching of the Wireshark software and the network simulator ns-3 at the Bachelor class of "Telecomunicazioni" in the Computer and Control Engineering Department.
- Apr 2020 – Jun 2020    **Android developer - Teleskill, Rome, Italy**
- Oct 2019 – Feb 2020    **Research project: BLUES - Sapienza, University of Rome**  
Extension of my previous work over BLE mesh networks. This work lead to a publication at InThings 2020 [4]. We devise a two layers BLE mesh-based networking paradigm obtained by generalizing Android BE-MESH for hardware-independent sensor networks. To have our implementation ready for IoT systems we based it on the ESP32 off-the-shelf board.
- Jul 2019 – Sep 2019    **Technical Student - CERN, Geneva, Switzerland**
- Jun 2019 – Jul 2019    **Research grant - Sapienza, University of Rome**  
"Studio di soluzioni implementative di piattaforme wireless per e-Health IoT."  
This work lead to a publication at EDGING 2019 [5].
- Oct 2018 – Jan 2019    **Research project: BE-Mesh - Sapienza, University of Rome**  
Mesh BLE Network for disaster recovery and SAR missions (joint project with Northeastern University). Inside this research project, we developed a new ad hoc BLE mesh network which resulted in a publication at IEEE INFOCOM Demo 2019 [6].
- Feb 2018 – Sep 2018    **Front-End Developer - WSENSE (BSc dissertation)**  
Control Dashboard for UAV (Underwater Autonomous Vehicles) built in Angular that communicates via HTTP and MQTT to cloud and UAVs. [Here](#) you can find more information about WSENSE and IoUT.
- Aug 2016 – Dec 2016    **Laboratory Development - Physics Department, Sapienza, University of Rome**  
Development and implementation of an environment controller for a clean room 10000.  
Technologies used: Arduino board and Python serial communication libraries.  
Link to the used repositories: [client side \(Python\)](#) and [board side \(Arduino\)](#).

## COMPUTER SKILLS

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PROTOCOLS AND CONCEPTS	O-RAN, 5G networks and wireless technologies, BLE, mesh networking, Network Security
SYSTEMS	Unix based systems, Windows
LANGUAGES	C++, C-UNIX, Python, Assembly(x86), Arduino and IoT development, BASH, NodeJS
OTHER SOFTWARE	SQL and NoSQL DB, <a href="#">Github</a> , Gitlab, StackStorm, Docker
TYPESETTING	Cisco Packet Tracer, UNIX system administration. Office, Wordpress, $\LaTeX$

## LANGUAGE SKILLS

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ITALIAN	Native
ENGLISH	Working proficiency

## AWARDS

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November 2022	Progetti per Avvio alla Ricerca 2022 - Tipo 1. Awarded by "Sapienza, University of Rome" with the title <i>Programmable and Customized Intelligence for Traffic Steering and Quality of Service optimization in 5G Networks Using Open RAN Architectures</i>
December 2021	Progetti per Avvio alla Ricerca 2021 - Tipo 1. Awarded by "Sapienza, University of Rome" with the title <i>End-to-End Simulation of Bluetooth Low Energy Networks</i>
June 2019	Best Engineering student of "Borse di studio De Maggi delle facoltà di Ingegneria della Sapienza." Released by "Fondazione per la promozione dello studio e della ricerca La Sapienza"

## PUBLICATIONS

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- [1] A. Lacava, M. Polese, R. Sivaraj, R. Soundrarajan, B. S. Bhati, T. Singh, T. Zugno, F. Cuomo, and T. Melodia, "Programmable and customized intelligence for traffic steering in 5g networks using open ran architectures," *IEEE Transactions on Mobile Computing*, 2023.
- [2] A. Lacava, M. Bordin, M. Polese, R. Sivaraj, T. Zugno, F. Cuomo, and T. Melodia, "ns-o-ran: Simulating o-ran 5g systems in ns-3," *arXiv preprint arXiv:2305.06906*, 2023.
- [3] A. Lacava, E. Giacomini, F. D'Alterio, and F. Cuomo, "Intrusion detection system for bluetooth mesh networks: data gathering and experimental evaluations," in *SPT-IoT 2021: The Fifth Workshop on Security, Privacy and Trust in the Internet of Things (SPT-IoT 2021)*, (Kassel, Germany), Mar. 2021.
- [4] E. Giacomini, F. D'Alterio, A. Lacava, and F. Cuomo, "Blues: A self-organizing ble mesh-network paradigm for iot environments," in *2020 IEEE 21st International Symposium on "A World of Wireless, Mobile and Multimedia Networks" (WoWMoM)*, pp. 409–414, Aug 2020.
- [5] A. Petroni, A. Lacava, P. Locatelli, G. Nero, M. Pediconi, and F. Cuomo, "Exploiting edge computing for adaptive data update in internet of things networks.," in *AmI (Workshops/Posters)*, pp. 27–37, 2019.
- [6] A. Lacava, G. Nero, P. Locatelli, F. Cuomo, and T. Melodia, "Demo abstract: BE-Mesh: bluetooth low energy mesh networking," in *2019 IEEE INFOCOM Demo (INFOCOM 2019 Demo)*, (Paris, France), Apr. 2019.
- [7] A. Lacava, V. Zottola, A. Bonaldo, F. Cuomo, and S. Basagni, "Securing bluetooth low energy networking: An overview of security procedures and threats," *Computer Networks*, vol. 211, p. 108953, 2022.
- [8] P. Locatelli, M. Perri, D. M. J. Gutierrez, A. Lacava, and F. Cuomo, "Device discovery and tracing in the bluetooth low energy domain," *Computer Communications*, 2023.

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