

# Emanuele Giacomini

## EDUCATION

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- Nov 2021 – Current    **PhD in Computer Engineering**  
*University of Rome, Sapienza*  
My PhD focuses on Simultaneous Localization And Mapping (SLAM)
- Oct 2019 – Oct 2021    **MSc in Artificial Intelligence and Robotics** (2 years, English)  
*University of Rome, Sapienza*  
**Final grade:** 110 cum laude / 110
- Sept 2016 – Oct 2019    **BSc in Computer Engineering** (3 years, Italian)  
*University of Rome, Sapienza*  
**Final grade:** 110 cum laude / 110
- Sept 2011 – Jul 2016    **High School Diploma**  
*Istituto Tecnico Industriale Pacinotti/Archimede (Rome)*

## ACTIVITIES

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- Nov 2021 – Current    **Robot Programming Assistant - *University La Sapienza, Rome***  
Supported *prof. Giorgio Grisetti* during the teaching activities for Robot Programming.
- Sept 2022 – Jul 2023    **Robocup Arm Challenge *University La Sapienza, Rome***  
Tutored the university team that won second place at the 2023 Robocup Arm manipulator challenge.
- Mar 2021 – Jul 2021    **Honours Programme - *University La Sapienza, Rome***  
Studied dimensionality reduction methodologies for 3D LiDAR sensors.  
The project involved the study and implementation of state-of-the-art and new techniques for 3D point cloud representation in 2D. The project is validated by real experiments using the *Ouster OS0-128* sensor.
- Mar 2021 – Jul 2021    **Research grant - *University La Sapienza, Rome***  
I've designed and developed a localization system for wireless networks.  
The system was designed to work in LoRAWAN environment in which a single device ping the network continuously while the centralized localization system process the sequence of Received Signal Strength (RSS) features for each reached gateway.
- Oct 2019 – Feb 2020    **Research project: BLUES - *University La Sapienza, Rome***  
We developed a new paradigm for the creation of Bluetooth Low Energy mesh networks.  
The project was written in C/C++ for embedded systems (ESP32).  
Submitted at **First International Workshop on Intelligent Things and Services 2020**
- Jun 2019 – Feb 2020    **Research grant - *University of Rome, Sapienza, Rome***  
I've developed a Life Detection system based on a sequence of low resolution pictures.  
The detector is written in C++ and it's based on OpenCV framework.  
Works by stacking a multitude of filters for feature extraction on iris/pupil activity.
- Feb 2019 – Oct 2019    **Honours Programme - *University of Rome, Sapienza, Rome***

Studied and applied odometry calibration on 4W Holonomic mobile platform.  
Realized a multi joint implementation for the Orazio firmware.

- Oct 2018 – Feb 2019 **Python Developer - University of Rome, Sapienza, Rome**  
CVRPTW (Capacitated Vehicle Routing Problem with Time Windows) Solver developed using Google OR-Tools framework.  
Developed with the collaboration of CTL (Centro di ricerca per il Trasporto e la Logistica).
- Feb 2018 – Jun 2018 **CyberChallenge Attendee - University of Rome, Sapienza, Rome**  
Attendee for Cybersecurity training programme organized by the CINI, in collaboration with the Ministry of Defence and the SISR.  
The programme covered arguments like: malware analysis, reverse engineering and web security.
- Oct 2016 – May 2018 **Teacher in Robotics - IIS Pacinotti/Archimede, Rome**  
Held a course on robotics (ICARO) in which I trained 10 teams/year for the RJC  
During the last year, one of the soccer teams achieved the second place at the European Open competitions.

## COMPUTER SKILLS

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LANGUAGES	C/C++, Python, Matlab, Octave, Assembly(x86)
SYSTEMS	Unix, Windows, Embedded Programming
OTHER SOFTWARE	<a href="#">Github</a> , ROS, PyTorch, OpenCV.

## LANGUAGE SKILLS

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ITALIAN	Native
ENGLISH	Working proficiency

## PUBLICATIONS

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- [1] Luca Di Giammarino, Emanuele Giacomini, Leonardo Brizi, Omar Salem, and Giorgio Grisetti. Photometric lidar and rgb-d bundle adjustment. *IEEE Robotics and Automation Letters*, 8(7):4362–4369, 2023.
- [2] 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)*, pages 409–414, 2020.
- [3] Emanuele Giacomini, Leonardo Brizi, Luca Di Giammarino, Omar Salem, Patrizio Perugini, and Giorgio Grisetti. Ca<sup>2</sup>lib: Simple and accurate lidar-rgb calibration using small common markers, 2023.
- [4] Andrea Lacava, Emanuele Giacomini, Francesco D’Alterio, and Francesca Cuomo. Intrusion detection system for bluetooth mesh networks: Data gathering and experimental evaluations. In *2021 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)*, pages 661–666, 2021.
- [5] Omar Salem, Emanuele Giacomini, Leonardo Brizi, Luca Di Giammarino, and Giorgio Grisetti. Enhancing lidar performance: Robust de-skewing exclusively relying on range measurements, 2023.

Last updated: December 13, 2023