



## Marco Micheletto

Università degli Studi di Cagliari  
Dipartimento di Ingegneria Elettrica ed Elettronica (DIEE)  
Joint Lab on Safety and Security of AI (sAIfer Lab)  
Piazza d'Armi – 09123 Cagliari  
e-mail: marco.micheletto@unica.it

### *Curriculum Vitae*

#### Education

- **October 2019 – September 2022:** Ph.D. in Electronic and Computer Engineering, awarded with honors at the University of Cagliari, with the thesis *“Fusion of fingerprint presentation attacks detection and matching: a real approach from the LivDet perspective”* (Supervisor: Prof. Gian Luca Marcialis).
- **September 2017 – September 2019:** Master’s Degree in Electronic Engineering (LM-29), awarded with 110/110 cum laude at the University of Cagliari, with the thesis *“User-specific effect in fingerprint spoof detection”* (Supervisor: Prof. Gian Luca Marcialis).
- **September 2014 – July 2017:** Bachelor’s Degree in Biomedical Engineering, awarded with 110/110 cum laude at the University of Cagliari, with the thesis *“Personal recognition through palm vein patterns”* (Supervisor: Prof. Gian Luca Marcialis).

#### Academic position held

- **September 2023 – Present:** Assistant Professor (SSD IINF-05/A - Information Processing Systems) – PNRR SERICS Project (Security and Rights in the CyberSpace, CUP F53C22000740007 – MUR Code: PE0000014 - Spoke 2 “Misinformation and Fakes”).
- **October 2022 – August 2023:** Post Doctoral fellowship at the Department of Electrical and Electronic Engineering, University of Cagliari (Scientific Supervisor: Prof. Gian Luca Marcialis).
- **November 2021 – May 2022:** Visiting Ph.D. student at Brno University of Technology (Prof. Martin Drahansky).

#### Scientific Profile

The primary research goal of Marco Micheletto focuses on analyzing Presentation Attack Detection (PAD) systems for fingerprint recognition. Specifically, his work integrates fake detection modules with biometric recognition systems, evaluating the conditions under which this integration can occur without compromising overall performance.

Key contributions include developing a performance simulator based on probabilistic modeling of Receiver Operating Characteristic (ROC) curves, called **BIO-Wise**, available online for the scientific community<sup>1</sup>.

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<sup>1</sup> <https://livdet.pythonanywhere.com/>



He has been a co-organizer of the **Fingerprint Liveness Detection Competition**<sup>2</sup> (LivDet) since 2019, collaborating on the creation and acquisition of fake fingerprints and managing experimental analysis.

His research also extends to related areas of protection against digital and physical threats, such as **deepfake detection** and **anomalous behavior analysis in crowded places**. Deepfake detection leverages deep learning techniques to identify sophisticated manipulations of images and videos, ensuring the authenticity of digital content. The analysis of behavior in high-density crowd contexts aims to automatically detect suspicious or potentially dangerous situations, providing tools to improve public safety and emergency management.

Other research topics include the study of emerging biometrics, such as EEG signals and palm veins, used both for personal identification and behavior analysis.

He is part of the team of the **BullyBuster** project, funded by Ministero dell'Università e della Ricerca, which develops technologies for detecting bullying and cyberbullying actions through computer vision and artificial intelligence algorithms.

## Pubblicazioni

Since 2018, Marco Micheletto has co-authored **6 articles** in international journals and **12 contributions** in conference proceedings or book chapters. According to **Scopus**, he has an **h-index of 5** with **110 citations**, while **Google Scholar** reports an **h-index of 6** with **185 citations**. He serves as a reviewer for leading international journals and conferences in pattern recognition and artificial intelligence fields. For a complete and up-to-date list of publications, please visit the [IRIS repository](#) of the University of Cagliari.

## Attività didattica

- **A.Y. 2023/24 – Present:** Co-instructor of the course “*Artificial Intelligence and Security*” (52 out of 84 hours, 9 CFU) – Bachelor’s Degree in Applied Computer Science and Data Analytics (IADA), Faculty of Science.
- **A.Y. 2022/23:** Instructor of the course “*Image Processing*” (40 hours, 5 CFU) – Bachelor’s Degree in Medical Radiology Techniques, Imaging, and Radiotherapy, Faculty of Medicine and Surgery.
- **A.Y. 2018/19 – 2022/23:** Teaching Assistant for the course “*Elements of Computer Science*” (25 hours) – Bachelor’s Degree in Biomedical Engineering, Faculty of Engineering and Architecture.

Supervisor and co-supervisor of 7 Bachelor’s thesis.

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<sup>2</sup> <https://sites.unica.it/livdet/>



## Awards and Conference Participation

### Awards

- **Best Paper Award** for the “Image Processing for Biological Applications and Biometry” session for the paper “Are Adaptive Face Recognition Systems Still Necessary? Experiments on the APE Dataset” presented at **IPAS 2020**.

### Invited Lectures

- **Lecture** at **EDUC Summer School 2022**, “Building Trust in the Information Age”: “Biometric Authentication: Liveness Detection”, August 29 - September 9, 2022, Cagliari.

### Conference Participation

- **BMVC 2024**: Presentation of the paper “Data generation via diffusion models for crowd anomaly detection”, November 25-28, 2024, Glasgow, UK.
- **ICIP 2022**: Presentation of the paper “Fingerprint recognition with embedded presentation attacks detection: Are we ready?”, October 16-19, 2022, Bordeaux, France.

## Reviewer for International Journals and Conferences

- Pattern Recognition Letters (Elsevier)
- ACM/SIGAPP Symposium On Applied Computing (ACM SAC)
- IEEE-IAPR Int. Conf. On Pattern Recognition (ICPR)
- IEEE International Joint Conference on Biometrics (IJCB)
- IEEE International Conference on Image Processing (ICIP)
- IEEE International Workshop on Information Forensics and Security (WIFS)

## Progetti di ricerca internazionali e nazionali

### Member in competitive BIDS:

- **PRIN 2017**: *BullyBuster – A framework for bullying and cyberbullying action detection by computer vision and AI methods* (2019-2022).
- **PRIN 2022**: *BullyBuster 2 – The ongoing fight against bullying and cyberbullying with the help of AI for human wellbeing* (awaiting kickoff), 2023-2025.

### Member in technology transfer projects on direct commission (thirdparty projects)

- **Feasibility study and prototype development of an electronic document protection system through biometric access**, CSAMed-Net4Market (2017-18).
- **Fingerprint Forensic Tool**: Processing fingerprint images for minutiae extraction and comparison, **Presidency of the Council of Ministers**, Polo Scientifico (2019-2021).



**I declare that all what reported in this CV is true, under my responsibility.**

Cagliari, 11/12/2024

Marco Micheletto