

GIULIA ORRÙ

Date of birth 30/06/1991, Nationality Italian
Assistant Professor SSD ING-INF/05
Department of Electrical and Electronic Engineering
University of Cagliari

EDUCATION AND TRAINING

FEBRUARY 2021

PHD IN ELECTRONIC AND COMPUTER ENGINEERING (DOCTOR EUROPAEUS)

Received from the University of Cagliari, Italy

Thesis: Template update algorithms and their application to face recognition systems in the deep learning era.

2017

MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING

Received from the University of Cagliari, Italy

Thesis: Adaptive biometric systems for face recognition.

2014

BACHELOR'S DEGREE IN ELECTRONIC ENGINEERING

Received from the University of Cagliari, Italy

Thesis: Experimental evaluation and prototyping of a person re-identification system based on clothing appearance and gait analysis using RGB-D cameras

WORK EXPERIENCE

Giulia Orrù has been working at the Pattern Recognition and Applications Lab (<https://pralab.diee.unica.it/en>) since 2015, and she currently holds a position as Assistant Professor of Computer Engineering at the University of Cagliari. Her research focuses on biometric technologies, starting from person recognition through fingerprints, faces, EEG signals and palm-vein, up to analysing some related issues such as liveness detection, user-specific effect, adaptive biometric systems, behavioural biometrics and deep fakes.

Giulia Orrù is co-author, from 2016, of 12 publications in international journals and 26 articles in conference proceedings with an h-index of 8 and a total number of citations of 283 according to Scopus. She acts as referee for widespread international journals and conferences in pattern recognition, computer vision and artificial intelligence (e.g. IEEE TIFS, Pattern Recognition, Applied Intelligence, Neurocomputing, Pattern Recognition Letters, ICPR).

She has covered the role of Team Leader in various technology transfer projects focused on personal recognition, fingerprint presentation attack detection, deep-fake detection and crowd analysis.

She is co-supervisor of Bachelor and Master students in the field of biometrics.

She is co-organizer of the last five editions of the international Fingerprint Liveness Detection Competition, currently in its ninth edition (<https://livdet.diee.unica.it/>, principal investigator prof. Gian Luca Marcialis), in the role of Team Leader.

In particular, she deals with the Team management for spoofs creation, presentation attack detection experimental analysis and communication with competitors.

Between July and September 2024 she has been visiting researcher at the Masaryk University, Brno, Czech Republic.

TEACHING EXPERIENCE

(AY– 2024/2025) Lecturer of "The Ethics of Artificial Intelligence Applied to Security" (28 hours) for the M.Sc. Information Engineering, Technische Universität München.

(AY 2022/2023 - 2023/2024 – 2024/2025) Lecturer of "Technologies for Information Security: a learning-by-doing approach" (16 hour) for the PhD in Electronic and Computer Engineering, University of Cagliari.

(AY 2023/2024 - 2024/2025) Co-lecturer of "Artificial Intelligence and Security" (32 hours) for the Bachelor's Degree in Applied Computer Science and Data Analytics, University of Cagliari.

(AY 2021/2022 - 2022/2023 - 2023/2024) Co-lecturer of "Computer Architecture and Organization" (30 hours) for the Bachelor's Degree in Computer Science, Electrical and Electronic Engineering, University of Cagliari.

(AY 2022/2023 – 2024/2025) Co-lecturer of "Computer Architecture and Organization" (30 hours) for the Bachelor's Degree in Biomedical Engineering, University of Cagliari.

(AY 2020/2021 - 2021/2022) Lecturer of "Image Processing" (40 hours) for the Bachelor's Degree in Imaging And Radiotherapy Techniques, University of Cagliari.

(From AY –2019/2020 to present) Organization of laboratory exercises for the course "Biometric Technologies and Behavioural Security" for the Master Degree In Computer Engineering, Cybersecurity And Artificial Intelligence, University of Cagliari.

Supervisor or co-supervisor of 17 Bachelor's theses and 6 Master's theses.

SCIENTIFIC PARTICIPATION IN NATIONAL AND INTERNATIONAL RESEARCH PROJECTS

SCIENTIFIC RESPONSIBILITY IN TECHNOLOGY TRANSFER PROJECTS ON DIRECT COMMISSION (THIRD-PARTY PROJECTS)

- [2024] Development of a regression technology for simulating the wire drawing process of steel wires, ASTARTE STRATEGIES s.r.l.

TEAM LEADER IN TECHNOLOGY TRANSFER PROJECTS ON DIRECT COMMISSION (THIRD-PARTY PROJECTS)

- [2023] Integration of "biometric traces" extraction technology from mobile devices, Interferentia s.r.l.

- [2021] Research and technology for providing biometric authentication studies for MBDA products, MBDA.
- [2020-2021] Development of a "biometric traces" extraction technology from mobile devices, Interferentia s.r.l..
- [2019-2021] Fingerprint Forensic Tool: image processing for minutiae extraction and comparison, Presidency of the Council of Ministers, Scientific Pole.
- [2019-2021] Preliminary analysis of "deep fake detection": detecting video artifacts generated by convolutional neural networks, Presidency of the Council of Ministers, Scientific Pole.

MEMBER IN TECHNOLOGY TRANSFER PROJECTS ON DIRECT COMMISSION (THIRD-PARTY PROJECTS)

- [2018] Development of a "liveness detection" technology for fake fingerprint recognition on Linux platform, Greenbit.
- [2017-2018] Feasibility study and prototype development of an electronic document protection system via biometric access, CSAMed-Net4Market.

TEAM LEADER IN COMPETITIVE BIDS

- [2023-2026] Projects of National Relevant Interest (PRIN 2022 PNRR) - BullyBuster 2 - the ongoing fight against bullying and cyberbullying with the help of artificial intelligence for the human wellbeing.
- [2019-2022] Projects of National Relevant Interest (PRIN 2017) - BullyBuster: A framework for bullying and cyberbullying action detection using computer vision and AI methods and algorithms.

MEMBER OF ORGANIZING COMMITTEE OF CONFERENCES

- Chair of the track "Innovations in multimedia forensics and biometric security" at the 40th ACM/SIGAPP Symposium On Applied Computing 2025, , March 31 - April 4, 2025 — Sicily, Italy.
- Programme Chair of the European Conference on Computer Vision ECCV 2024: "4th Workshop on Explainable & Interpretable Artificial Intelligence for Biometrics" (https://vcmi.inesctec.pt/xai4biom_eccv2024/index.html).
- Co-chair of the Special Session EmoCrowdSSFG at the IEEE International Conference on Automatic Face and Gesture Recognition 2021, Jodhpur, India (Virtual Event) December 15 - 18, 2021 (<https://iab-rubric.org/fg2021/session.html>).

EDITORIAL COMMITTEES PARTICIPATION

- Executive Guest Editor of the Virtual Special Issue "Recent Advances in Behavioral and Hidden Biometrics for Personal Identification" - Pattern Recognition Letters (Impact Factor 3.847), published on Pattern Recognition Letters, Vol. 185, 2024, Pages 108-109, ISSN 0167-8655, <https://doi.org/10.1016/j.patrec.2024.07.016>. (<https://www.sciencedirect.com/science/article/pii/S0167865524002198>)
- Guest Editor of the Special Issue "Advancements in Deepfake Technology, Biometry System and Multimedia Forensics" - J. Imaging Letters (Impact Factor 2.7), 2024.

CONFERENCE PARTICIPATION AND INVITED TALKS

INVITED TALKS

- Demo session: Presentation of the BullyBuster Project at the EAB RESEARCH PROJECTS CONFERENCE, Darmstadt, Germany, September 18-20 2023.
- Invited Speaker at EAB Virtual Lunch Talk: "Adaptive Biometric Systems in the Deep Learning Era", May 3 2022(virtual).
- Lecture at EDUC Summer School 2022: "Biometric Authentication: Liveness Detection", Cagliari, August 29 - September 9.
- Lecture at Cyber Security & AI Seminar: "Adaptive biometric systems and their application in the deep learning era", Brno, Czech Republic, November 28-29 2022(virtual).
- Lecture Workshop Erasmus+ FORC Project: "Biometric Authentication: Methodologies and Anti Spoofing Approaches", Cagliari, June 10-21 2019.

CONFERENCE PRESENTATIONS

- BIOSIG 2023: "Human-centered evaluation of anomalous events detection in crowded environments", Darmstadt, Germany, September 20-22 2023.
- GTTI Online Workshop: "Deepfake analysis and detection using quality measures", June 17 2021.
- IJCB 2021: "LivDet 2021 Fingerprint Liveness Detection Competition - Into the unknown", Shenzhen, China, August 4-7 2021(virtual).
- IPAS 2020: "Are Adaptive Face Recognition Systems still Necessary? Experiments on the APE Dataset", Genoa, Italy, December 9-11 2020.
- MMForWild 2020: "Fingerprint Adversarial Presentation Attack in the Physical Domain", Milan, Italy, January 10-15 2020.
- ICPR 2020: "Detecting Anomalies from Video-Sequences: a Novel Descriptor", Milan, Italy, January 10-15 2020.
- BIOFOR 2019: "Analysis of 'User-Specific Effect' and Impact of Operator Skills on Fingerprint PAD Systems", Trento, Italy, September 10 2019.
- GARR Conference: "Interoperability and access to data and services: electronic document protection system via biometric access", University of Cagliari, October 3-5 2018.

AWARDS

- Best paper award for the session "Image Processing for Biological Applications and Biometry" for the paper "Are Adaptive Face Recognition Systems still Necessary? Experiments on the APE Dataset", IPAS 2020 [C5].
- Best student paper award (Track: Biometrics, Human Analysis and Behavior Understanding) for the paper "Are spoofs from latent fingerprints a real threat for the best state-of-art liveness detectors?", ICPR2020 [C6].
- Winners of the competition AI-KFM 2022-Automatic Detection of Gastrointestinal Parasites in Ruminants, Co-located with ICIAP 2021.

OTHER INFORMATION

- English Language Certification Level C1 at the University Language Center of the University of Cagliari
- Qualified to practice the profession of Information Engineer

PUBLICATIONS

[List of publications](#)