

## Summary information on the 18<sup>th</sup> edition of the

### Int.I Summer School on Biometrics co-organised with COST Action CA16101

- **The name of the summer school:** The 18th Int.I Summer School on Biometrics <http://biometrics.uniss.it>
- **The dates and location:** May 30th to 4th June, 2021, Alghero, Italy
- **A brief summary of the school's intent, organization, scope, and motivation:**
- From the early days, when security was the driving force behind biometric research, today's challenges go far beyond security. Machine learning, Image understanding, Signal analysis, Neuroscience, Robotics, Forensic science, Digital forensics and other disciplines, converged in a truly multidisciplinary effort to devise and build advanced systems to facilitate the interpretation of signals recorded from individuals acting in a changing environment. This is what we simply call today "Biometrics".

**For the last eighteen years, the International Summer School on Biometrics has been closely following the developments in science and technology to offer a cutting edge, intensive training course, always up to date with the current state-of-the-art.**

What are the most up-to-date core biometric technologies developed in the field? What is the potential impact of biometrics in forensic investigation and crime prevention? What can we learn from human perception? How to deploy current AI and Deep Learning approaches? How to deal with adversarial attacks in biometric recognition?

This school follows the successful track of the International Summer Schools on Biometrics held since 2003. In this 18th edition, the courses will mainly focus on new and emerging issues:

1. **The impact of AI in Biometrics and Biometrics in AI;**
2. **How to make "Deep Biometrics" systems *explainable*;**
3. **Biometrics for social interactions and emerging applications;**
4. **How to exploit new biometric technologies in forensic and security applications.**

The [courses](#) will provide a clear and in-depth picture on the state-of-the-art in biometric verification/identification technology, both under the theoretical and scientific point of view as well as in diverse application domains.

The lectures will be given by 18 outstanding experts in the field, from both academia and industry.

An advanced feature of this summer school will be some practical sessions to better understand, "hands on", the real potential of today's biometric technologies.

### **Participant application**

The school is open to about 70 highly qualified, motivated and pre-selected participants. Phd students, post-docs, researchers, forensic examiners, police officers and professionals are encouraged to apply.

The school fees will be in the order of 400 euro for Phd students and 800 euro for others. The fees will include all live courses and handling material.

A number of scholarships, covering the fees, will be awarded to Phd students, selected on the basis of their scientific background and on-going research work. The scholarship request form can be downloaded [HERE](#).

Phd students and post-docs are encouraged to submit a short paper (6 pages maximum) for an oral presentation on their recent research activity.

Virtual poster boards will be also available to all participants to display their current research or professional advances.

### **School location**

Due to the persisting Sars-CoV-2 pandemic, the school lectures will be delivered online, through videoconferencing facilities.

1. Live lectures will be delivered online with full sharing of the lecturing material and allowing live interaction with the participants. Private and group meetings with each lecturer will be organised to deepen the discussion started in the class.
2. Ad-hoc teleconferencing tools will be also set up for practical hands-on sessions.
3. Open sessions will be organised with questions and answers directed by the leading experts in the field.

The organisers and all lecturers are fully committed to make this year's school as successful, instructing and inspiring as in the past years.

### **Submission of applications**

Send a filled [application form](#) to the school together with a short curriculum vitae, via e-mail to Massimo Tistarelli: [biometricsummerschool@gmail.com](mailto:biometricsummerschool@gmail.com)

#### **Key Dates:**

Submission of applications:

- Submission of applications: February 15th, 2021
- Notification of acceptance: March 20th, 2021
- Registration: April 25th, 2021

Download: [registration form](#)



18<sup>th</sup> IAPR/IEEE Int.I Summer school for advanced studies on biometrics:  
**BIOMETRICS FOR AI / AI FOR BIOMETRICS**



**May 30 - June 4 2021**  
**COURSE SCHEDULE**



		14:00 - 14:30	14:30 - 16:00	16:00 - 17:00							
		Chair: Massimo Tistarelli									
Sunday May 30			<b>OPENING</b> Massimo Tistarelli (University of Sassari, Italy)		<b>Thirimachos Bourlai</b> (University of Georgia, USA) Practical Biometric Systems and Project <b>Session 1</b>		<b>POSTER SESSION</b>				
		11:00 - 12:00	Lunch break and Poster Session	13:30 - 14:30	Q&A break	15:00 - 16:00	Q&A break	16:30 - 17:30	Q&A break	17:45 - 18:45	
		Chair: Massimo Tistarelli			Chair: Enrico Grosso						
Monday May 31	<b>Alessandro Verri</b> (University of Genova, Italy) Machine Learning for Biometrics	12:00 - 13:30		<b>Lior Wolf</b> (Tel Aviv University, Israel) Deep Learning for Biometrics: from Technologies to Meta- technologies		<b>Vishal Patel</b> (Johns Hopkins University, USA) Federated Learning for Biometric Applications		<b>Anil Jain</b> (Michigan State University, USA) <b>Keynote: Biometrics: Past, Present and Future</b>		<b>Round Table 1:</b> Research Directions in Biometrics for AI and AI for Biometrics	
		11:00 - 12:00	Lunch break and Poster Session	13:30 - 14:30	Q&A break	15:00 - 16:00	Q&A break	16:30 - 17:30	Q&A break	18:00 - 19:00	Q&A break
		Chair: Mark Nixon			Chair: Arun Ross						
Tuesday June 1	<b>Davide Maltoni</b> (University of Bologna, Italy) Hands on Fingerprint Recognition with OpenCV and Python	12:00 - 13:30		<b>John Daugman</b> (Cambridge University, UK) Big Biometric Entropy: Collision Avoidance on a Global Scale		<b>Massimo Tistarelli</b> (University of Sassari, Italy) AI for Face-based Human Recognition		<b>Mark Nixon</b> (University of Southampton, UK) On Gait and Soft Biometrics		<b>Christoph Busch</b> (Hochschule Darmstadt, Germany) Morphing attack detection	
		11:00 - 12:00	Lunch break and Poster Session	13:30 - 14:30	Q&A break	15:00 - 16:00	Q&A break	16:30 - 17:30	Q&A break	18:00 - 19:00	Q&A break
		Chair: Davide Maltoni			Chair: Vishal Patel						
Wednesday June 2	<b>Nicholas Evans</b> (EURECOM, France) Speaker Recognition, Spoofing and ASV Spoof	12:00 - 13:30		<b>Giulio Sandini</b> (Italian Institute of Technology) From Computer Vision to iCub and the Quest for Cognition		<b>James Haxby</b> (Dartmouth College, USA) Commonality of the Fine- Grained Structure of Neural Representations		<b>Alice O'Toole</b> (University of Texas, USA) Understanding Face Representations in Deep CNNs		<b>Ida Gobbini</b> (Dartmouth College, USA) Individual Differences in the Neural System for Face Perception and Recognition	
		11:00 - 12:00	Lunch break and Poster Session	13:30 - 14:30	Q&A break	15:00 - 16:00	Q&A break	16:30 - 17:30	Q&A break	17:45 - 18:45	
		Chair: Mark Nixon			Chair: Alice O'Toole						
Thursday June 3	<b>Laurent Kazdaghli</b> (Idemia, France) Exploiting Biometrics: An Industrial Perspective	12:00 - 13:30		<b>Jonathon Phillips</b> (NIST, USA) Evaluations for Face Recognition and Explainable AI for Biometrics		<b>Arun Ross</b> (Michigan State University, USA) AI and Biometrics: Opportunities and Challenges		<b>Tomaso Poggio</b> (Massachusetts Institute of Technology, USA) Observations on Deep Puzzles		<b>Round Table 2:</b> Research Directions in Biometrics for AI and AI for Biometrics	
		11:00 - 12:00	Lunch break and Poster Session	13:30 - 14:30	Q&A break	15:00 - 16:00	Q&A break	16:30 - 17:30	Q&A break		
		Chair: Enrico Grosso			Chair: Massimo Tistarelli						
Friday June 4	<b>Didier Meuwly</b> (Netherlands Forensics Institute, Netherlands) Forensic biometrics: the Use of Biometric Data and Databases in Forensic Applications	12:00 - 13:30		<b>Thirimachos Bourlai</b> (University of Georgia, USA) Practical Biometric Systems and Project <b>Session 2</b>		<b>Emilio Mordini</b> (Responsible Technology, France) Ethics of Biometrics: an Overview		<b>CONCLUDING REMARKS</b> Massimo Tistarelli (University of Sassari, Italy)			