

The KINDI Center for Computing Research and CSE department cordially invite you to a talk on

ARTIFICIAL INTELLIGENCE FOR BIOMETRIC TECHNOLOGIES AND SYSTEMS

DAY & DATE: Thursday, 4th November 2021

TIME: 2:00 PM

VENUE: Online ([LINK](#))

ABSTRACT

Biometrics concerns the study of automated methods for identifying an individual by measuring one or more physical or behavioral features of him. Certain physical human features or behaviors are characteristics that are specific and can be uniquely associated to one person. Retinas, iris, DNA, fingerprint, palm print, or pattern of finger lengths are typical physical features that are specific to individuals. Also the voice print, gait, or handwriting can be used to this purpose.

Nowadays biometrics is rapidly evolving. This science is getting more and more accurate in identifying persons and behaviors. Consequently, these technologies become more and more attractive and effective in critical applications, such as to create safe personal IDs, to control the access to personal information or physical areas, to recognize terrorists or criminals, to study the movements of people, and to monitor the human behavior. The use of biometrics in the real life often requires very complex signal and image processing and scene analysis, for example encompassing biometric feature extraction and identification, individual tracking, face tracking, eye tracking, liveness/anti-spoofing tests, and facial expression recognition. Artificial intelligence techniques (including neural networks, fuzzy logic, evolutionary computing, and multi-agent systems) have been proved to be useful and effective in addressing this kind of data processing, especially when it is difficult to identify an algorithm while sufficiently descriptive examples are available, or when fuzzy descriptions are more natural to capture the essence of the problem, or when complex non-linear optimization is needed, or when multiple agents cooperate in solving the application problem.

This talk will review the domain of biometrics, its applications in various domains and the relevance of artificial intelligence, in particular neural networks and deep learning) to effectively solve various problems in these applications.



Prof. Vincenzo Piuri,
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Vincenzo Piuri has received his Ph.D. in computer engineering at Polytechnic of Milan, Italy (1989). He is Full Professor in computer engineering at the University of Milan, Italy (since 2000). He has been Associate Professor at Polytechnic of Milan, Italy and Visiting Professor at the University of Texas at Austin, USA, and visiting researcher at George Mason University, USA.

His main research interests are: artificial intelligence, computational intelligence, intelligent systems, machine learning, pattern analysis and recognition, signal and image processing, biometrics, intelligent measurement systems, industrial applications, digital processing architectures, fault tolerance, cloud computing infrastructures, and internet-of-things. Original results have been published in 400+ papers in international journals, proceedings of international conferences, books, and book chapters.

He is Fellow of the IEEE, Distinguished Scientist of ACM, and Senior Member of INNS. He is President of the IEEE Systems Council (2020-21) and IEEE Region 8 Director-elect (2021-22), and has been IEEE Vice President for Technical Activities (2015), IEEE Director, President of the IEEE Computational Intelligence Society, Vice President for Education of the IEEE Biometrics Council, Vice President for Publications of the IEEE Instrumentation and Measurement Society and the IEEE Systems Council, and Vice President for Membership of the IEEE Computational Intelligence Society.

