ENVIRONMENTAL MONITORING AND PREDICTION

Environmental monitoring techniques focus on the study of physical phenomena as well as the design and implementation of policies, mechanisms, and technologies applied to the geographical areas of interest, with the purpose of predicting and reacting to environmental issues to ensure sustainability and the well-being of individuals. Examples of environmental monitoring applications include natural disaster detection (e.g., wildfires, earthquakes, volcanic eruptions, oils spills), environment observation (e.g., crop monitoring, solar activity detection, monitoring of water quality and pollution levels), and prediction (e.g., weather forecasts, production of renewable energy). Recently, advances in technology have fostered the introduction of innovative environmental monitoring systems. Faster, smaller, and more energy-efficient computing and networking infrastructures with lower cost enabled the deployment of monitoring solutions also in harsh environments to increase the robustness and effectiveness of environmental applications.

This special session presents an opportunity to the scientific and professional communities working in the field for discussing advances in environmental monitoring and prediction. Topics of interest include, but are not limited to:

- Sensors, instrumentation, measurements, sensor networks, wireless sensor networks, remote sensing, and UAV for environmental applications
- Digital architectures, analog/digital circuits, electronic devices and systems, embedded systems, reconfigurable and resilient architectures for environmental applications
- Communications, networking, internet of things, cloud and fog computing, and systems and network security for environmental applications
- Environmental signal and image processing
- Environmental monitoring, management, modelling and prediction
- Big data analytics, machine learning, computational intelligence, knowledge extraction, data fusion for environmental applications
- Environmental data management, privacy, and protection
- Monitoring of mater and air resources and pollution
- Robotics, rescue systems, and human interfaces for environmental applications
- Environment-friendly industrial manufacturing, logistics, and intelligent transportation
- Environment-friendly energy and resource production, consumption and efficiency
- Disaster prevention monitoring and management
- Reliability and safety in environments
- Ethics, social, economic, and technology impacts on environments

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Short Curriculum Vitae

Angelo Genovese (GSM'12-M'15) received the B.Sc., M.Sc., and Ph.D. in Computer Science in 2007, 2010, and 2014 respectively, from the Università degli Studi di Milano, Italy. He has been a visiting researcher at the University of Toronto, ON, Canada. Since 2014, he is a Postdoctoral Research Fellow at the Università degli Studi di Milano, Italy. His research interests include signal and image processing, three-dimensional reconstruction, and computational intelligence technologies for biometric systems, industrial and environmental monitoring systems, and design methodologies and algorithms for self-adapting systems. He published more than 30 works in books, international journals, and conference proceedings. For more information, visit http://homes.di.unimi.it/genovese.

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Short Curriculum Vitae

René Garello was born in 1953. He received the Ph.D. degree in Signal Processing at the Institut National Polytechnique de Grenoble (INPG) in 1981. From 1982 to 1984 he worked as a Research Associate at Aeronomy Lab, National Oceanic and Atmospheric Administration (NOAA) at Boulder, Colorado (USA). He joined the Ecole Nationale Supérieure des Télécommunications de Bretagne (Telecom Bretagne), Brest, France in 1985. In 1988, he became Professor in this engineering school in the field of signal processing and image processing and in 1995, Prof. Garello obtained his Habilitation (HDR; Habilitation to Supervise Research). His main research interests lie in Remote Sensing, 2D signal processing, statistical and spectral analysis applied to ocean surface features detection and characterization. Prof. Garello has authored or co-authored more than 40 papers, a hundred and thirty conference communications and three books. Prof. Garello was the General Chairman of the IEEE OCEANS'05 Conference held in Brest, France in June 2005. In 2005, he was elected Vice-President Conference Operations for the IEEE Oceanic Engineering Society and then re-elected in 2006 and 2008. He was elevated to the grade of Fellow of the IEEE, class of 2006, "for contributions to signal processing applied to remote sensing of the ocean". He received the OES Service Awards in 2006 for developing and implementing the two OCEANS conference policy. He is a Distinguished Lecturer since 2010. He was elected President of the Oceanic Engineering Society in October 2012 for the period 2013-2014 and reelected on September 2015 for two more years, 2015-2016.