



METROIND4.0&IoT

CALL FOR PAPERS for the Special Session on

AI-ENHANCED SENSING FOR INDUSTRIAL AND MEDICAL IoT APPLICATIONS

ORGANIZERS



Luca **VOLLERO**

University Campus Bio-Medico of Rome, Italy



Samuel **OLUWAROTIMI WILLIAMS**

Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China

IMPORTANT DATES

March 1, 2021

Extended Abstract Submission

March 28, 2021

Acceptance Notification

April 30, 2021

Final Paper Upload Deadline

CONTACTS



www.metroind40iot.org



info@metroind40iot.org



facebook.com/MetroInd40IoT

ABSTRACT

The computational and communication capabilities available in almost all electronic devices are fostering new ways of performing and consuming measurements in applications. Image sensing in computational photography is the most prominent example of such integration, in which the combined computational control of the physical data sampling and the computing processes have enabled innovative and unexpected methods to capture our moments in photography. Similar strategies are possible in other sensing domains under the combination of transducers control, communication, data fusion and advanced signal processing and ML/AI techniques. These sensing techniques may impact industrial and medical applications in several ways, such as, for example:

- Increasing the quality of recorded data under fixed hardware complexity and costs,
- Reducing the costs of measurements systems, without reducing the quality of recorded data,
- Enabling the recording of information impossible under traditional sampling strategies,
- Including lateral parameters and trade-offs, such as robustness, in the sensing systems design.

In this special session, we invite researchers to share their finding in computational and AI sensing for industrial and medical applications. Works describing theoretical and practical solutions are welcome, as well as papers describing the use of AI-enabled IoT sensors (smart sensors) in industrial and medical scenarios.

TOPICS

- Computational sensing systems design, modelling, implementation and evaluation
- Networks of coordinated IoT sensing devices
- Smart sensor design, modelling, implementation and evaluation
- Algebraic and Graph signal processing for distributed sensor data
- Compressive sensing applications to distributed sensor data
- Solutions based on special-purpose hardware for smart IoT sensors
- Models for indirect sensing
- AI and ML in sensor data processing
- Computational sensing in medical or industrial applications

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