



# 2020 IEEE INTERNATIONAL WORKSHOP ON Metrology for Industry 4.0 & IoT

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CNR - NATIONAL RESEARCH COUNCIL  
HEADQUARTERS - **Piazzale Aldo Moro**

## CALL FOR PAPERS for the Special Session on UNCERTAINTY EVALUATION IN SIGNAL PROCESSING FOR INDUSTRIAL APPLICATIONS

Uncertainty evaluation is essential in all applications that depend on measurement, as it ensures traceability and guarantees the accuracy and reliability of measurement results are understood. In Industry 4.0, the application of smart sensors and IoT technology enables industrial robots to complete tasks which used to be carried out by humans, such as data fusion, conditional monitoring and decision making. It is understandable that whenever a decision is taken based on measurement, the issue of uncertainty quantification becomes more critical than ever. In a production cycle, uncertainty contributes to every phase of the signal processing chain, starting from data sampling through data analysis until reaching the last step of decision making. The recent growing popularity of advanced clustering and machine learning methods, as well as the potential benefits of real-time processing and distributed processing techniques, have triggered a new wave of interest in uncertainty quantification and techniques for uncertainty propagation. In this special session, research works related to uncertainty evaluation for all phases in industrial applications are welcome.

### MAIN TOPICS

Topics of interest include but are not restricted to:

- Theoretical uncertainty study
- Sampling method
- Uncertainty evaluation for supervised and unsupervised machine learning
- Big data related issues
- Uncertainty modelling in IoT applications
- Uncertainty related user-case study
- Sensitivity analysis
- Model verification and validation
- Reliability analysis and optimization
- Robust analysis and optimization
- Design of experiments

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