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METROIND4.0&IoT

CALL FOR PAPERS for the Special Session on

SYSTEMS AND METHODS OF IoT-ENABLED HEALTH MONITORING FOR THE WELL-BEING ASSESSMENT OF OPERATOR AND PATIENT 4.0

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ABSTRACT

Never more than today, the importance of suitable technologies enabling reliable remote health monitoring of the single individual, as well as the whole community, has become evident, due to the pandemic crisis. Human-centric sensing (HCS) is a quite recent concept related to the Internet of Things (IoT). Advances in HCS systems have led to a wide use of sensor technologies as monitoring systems for health and well-being quantitative assessment. In particular, wearable technologies allow to create monitoring systems able to provide health-related indicators, both within smart living environments and workplaces.

In fact, the need of continuous and long-term monitoring in the workplace and in medical applications embraces conventional biosignals and parameters, as ElectroCardioGraphy (ECG), respiratory rate, photoplethysmogram (PPG), ElectroDermal Activity (EDA), but also unconventional biosignals, as face expressions and perceived comfort, for the purpose of a comprehensive well-being evaluation. Furthermore, nowadays, health monitoring can rely on several innovative techniques, as Compressed Sensing, Machine (Deep) Learning, Virtual/Augmented Reality and Artificial Intelligence (AI) algorithms for (big) data fusion and pattern recognition.

The proposed Special Session aims to promote the latest research contributions in this field. Original papers are invited to be submitted dealing with measurement methods for health monitoring and extraction of related features, pointing out electrical and/or mechanical metrological characteristics of the measurement sensor devices. Techniques aimed at improving accuracy and reliability of measurements, with a focus on well-being assessment for the "Operator 4.0" and the "Patient 4.0", are of special interest.

TOPICS

Topics of interest include but are not restricted to:
- IoT-enabled fatigue monitoring at the workplace and in medical environment
- Metrological assessment (accuracy and repeatability) of wearable-based monitoring systems
- Health parameters extraction and biosignal processing techniques for fatigue and well-being quantitative assessment
- Quantitative assessment of new technology-generated stressors on Industry4.0 workers and health operators
- Compressed Sensing for health monitoring
- Machine Learning (such as deep learning or pattern recognition) and other AI algorithms for health monitoring
- Sensor-based measurement of comfort/stress in workers and healthcare providers
- Multisensor data fusion models for wearable-based psychophysical monitoring of operators and patients 4.0
- Brain-computer interfaces for operators and patients 4.0
- Face and voice expression classification techniques for health and comfort assessment in operators and patients 4.0

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