

Guest Editorial

Special Issue on Advances and Current Trends in Sensing Physiological Parameters for Human Wellness and Patient Monitoring

SENSOR technology and advanced sensing systems are today experiencing a radical transformation which is affecting the way to conceive daily life. Sensors and sensing systems may improve the quality of life by providing more and more efficient care, safety, and new services for better living.

It is expected that in the future, an extensive use of sensors and transducers will allow people to improve their life quality. Among other applications, advanced sensing systems and smart transducers will have a fundamental role in the development of systems for monitoring physiological parameters.

However, several perspectives and open research problems have to be investigated, such as transducers development, signal treatment, standardized communication protocols, security, architecture, technology, reliability, maintenance, accuracy, and management. Research and development have an important task to improve performances and features of sensing systems by including issues, such as green communication, reliability assurance, high accuracy, and system maintenance.

The present Special Issue aims at presenting and highlighting the advances and the latest novel and emerging technologies, best practices, implementations, applications, and even innovative research outcomes concerning the design and the development of sensors, sensor networks, and sensing systems for applications on monitoring physiological parameters. The scope of this Special Issue is to provide readers, coming from industry and science, a comprehensive overview of the current state of the art in this field.

The guest editors have invited the international scientific community to suggest new features, ideas and even research collaborations between countries. So this Special Issue has provided a forum for the research community to share advances and new ideas in sensing technologies. Researchers and scientists have submitted innovative and relevant manuscripts dealing with the design and development techniques of smart sensors and networks entailing novel features. So this Special Issue has collected original papers that give a significant, comprehensive and up-to-date overview in the field of sensors and sensing systems for monitoring patients status for homecare and public healthcare. Smart sensing technologies, sensors, and transducers have been the common denominator of the received contributions.

We are very thankful to all authors who have contributed to this Special Issue. A variety of topics are in the following proposed and discussed in this Special Issue through its accepted 57 articles. The topics range from data acquisition aspects to remote monitoring applications. In detail, the accepted articles include advanced wearable devices, health monitoring by using vision tools and optical systems, innovative electrodes development, chemical biosensors, biosensing technologies, implantable devices, diagnostic algorithms, design of sensor interface devices, sensors for ambient assisted living and homecare. They include research articles on remote sensing technologies to improve the physiological parameters monitoring and human wellness, and innovative research concepts and methods to address the new needs and demand arising in healthcare by considering even the social impact on people. Manuscripts have been contributed by researchers from Europe, Asia, America, and Australia.

The guest editors think that this Special Issue has contributed to create an archival resource of applications and research papers dealing with the advances and current trends on sensors and sensing systems in patients' status monitoring. All papers provide interesting and promising advanced developments in the area.

Finally, we would like to thank all reviewers for their efforts to ensure quality. We thank Ms. Leigh Ann Testa for her support in the publication of this issue and the Editor-in-Chief of the IEEE SENSORS JOURNAL, Prof. Sandro Carrara, and the Associate Editor-in-Chief, Prof. Gerald Gerlach, for their continuous support toward the successful publication of this Special Issue.

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