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Editorial

Advances in Data Analysis for Wearable Sensors

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Wearable sensors have drawn a lot of attention from the research community during the last decade. They are increasingly used thanks to their unobtrusiveness, light weight, low cost, and ease of use for all-day and any-place applications. These technologies are emerging in a wide range of applications for human motion analysis, such as ambient assisted living, gait analysis, home-based rehabilitation, and sport activities. The development of wearable sensor systems to allow continuous and real-time monitoring requires robust, secure, and energy-saving data transmission. The analysis of data generated by wearable sensors presents challenges in signal processing to provide reliable and relevant outputs. Therefore, innovative and intelligent solutions are needed to fully exploit these data.

This Special Issue of *Applied Sciences* on "Advances in Data Transmission and Analysis for Wearable Sensors" aimed to connect researchers in the field of wearable sensors, focusing on data transmission and processing, in order to share ideas and conceptual approaches and to discuss the recent advances in this field, addressing innovative solutions and emerging issues.

In total, nine papers (eight research papers and one review paper) in various fields of Data Analysis for Wearable Sensors are presented in this Special Issue. Hossain et al. [1] compared two non-invasive procedures for estimating glycated hemoglobin, describing them as two- and three-wavelength methods, respectively. Li et al. [2] proposed a novel cooperative underlay cognitive radio network based on non-orthogonal multiple access with adaptive relay selection and power allocation. In particular, they proposed a two-stage adaptive relay selection and power allocation strategy to maximize the achievable data rate while ensuring the service quality. Munih et al. [3] developed a Wireless Body Area Network consisting of a master device and wearable nodes composed of inertial measurement units and radio modules for wireless data transmission over ultrawideband. Kim [4] proposed a cascaded bi- and unidirectional long short-term memory-based deep recurrent neural network model for classifying human gait activities according to walking environmental conditions. Sbrollini et al. [5] developed a model to estimate tidal volume from wearable-device measures of heart rate and breathing rate during exercise. Pierleoni et al. [6] proposed a continuous monitoring system based on a single wearable sensor placed on the lower back and an algorithm for gait parameters evaluation. Reza et al. [7] investigated the possibility of creating a reliable system that can help medical professionals to identify brain tumors. They proposed a much more efficient and error-free classification method, which is trained with a comparatively substantial number of real datasets rather than augmented data. Turja et al. [8] investigated the possibility of using two wavelengths (615 and 525 nm) to noninvasively estimate glycated hemoglobin, applying two different ratio calibrations. Dorst et al. [9] summarized studies evaluating the effectiveness of lower-cost equipment used in running gait retraining in altering biomechanical outcomes that may be associated with injuries.

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