

Special Issue on
**Advancements in Multimodal Sensor-Based Mental
 Healthcare Using Signal Processing and Artificial
 Intelligence Techniques**

CALL FOR PAPERS

The human nervous system is potentially the most complex system. It collects signals from human's sensory organs and transmits information to muscles. Multimodal sensors provide reliable and noninvasive means to acquire, store, and analyze human behaviours. Mental disorders like bipolar disorder and Alzheimer's disease generate abnormal brain signals which can be recorded using wearable sensors (electroencephalogram-EEG sensor, magnetoencephalography-MEG sensor, electromyogram-EMG sensor, and IMU sensor). The examination of physiological sensors' data has profound impact on clinical diagnoses; however, it is very difficult to interpret these signals. Signal processing techniques play an important role in brain imaging. Moreover, recent advancements in the domain of artificial intelligence (AI) make it possible to accurately interpret brain states with high precision using the multimodal sensors' data. Deep learning (a subdomain of artificial intelligence) has influenced the different domains of biomedical engineering, like neuroscience. Therefore, it is possible to develop expert systems based on multimodal sensors with very high accuracy and prediction capabilities.

This special issue solicits the submissions of high-quality and unpublished original research and review articles that aim to address the challenges in multimodal sensor-based brain imaging techniques. It also provides a forum to discuss the recent advancements in mental health diagnosis through multimodal sensors. Submissions related to the development of advanced signal processing methods for wearable sensors to capture normal-appearing lesions are also welcomed.

Potential topics include but are not limited to the following:

- ▶ Wearable sensors' role in neuroscience and neural engineering for mental healthcare
- ▶ Artificial intelligence (AI) and big data analytics in neuroscience
- ▶ Advancements in signal acquisition and preprocessing methods of multimodal physiological sensors (Dry/Wet Electrodes, etc.)
- ▶ Multimodal sensor-based Brain Computer Interface (BCI) systems for mental health assessment and neurorehabilitation
- ▶ AI for anxiety, depression (bipolar and unipolar), and workplace stress using physiological wearable sensors
- ▶ Biomedical signal processing and AI-based methods for working memory and attention using wearable sensors
- ▶ Advancements in rehabilitation methods for learning disabilities using body worn sensors
- ▶ Advancements in biomedical signal processing of multimodal sensors for mental healthcare
- ▶ Decoding methods of wearable sensors targeting mental healthcare

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/js/aifah/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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