

Special Issue on EEG-Based Biometrics: Challenges and Applications

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Biometrics is aimed at recognizing individuals based on physical, physiological, or behavioural characteristics of a human body such as fingerprint, gait, voice, iris, and gaze. Currently, the state-of-the-art methods for biometric authentication are being incorporated in various access control and personal identity management applications. While the hand-based biometrics (including fingerprint) have been the most often used technology so far, there is growing evidence that electroencephalogram (EEG) signals collected during a perception or mental task can be used for reliable person recognition. However, the domain of EEG-based biometry still faces the problems of improving the accuracy, robustness, security, privacy, and ergonomics of EEG-based biometric systems and substantial efforts are needed towards developing efficient sets of stimuli (visual or auditory) that can be used of person identification in Brain-Computer Interface (BCI) systems and applications.

There are still many challenging problems involved in improving the accuracy, efficiency, and usability of EEG-based biometric systems and problems related to designing, developing, and deploying new security-related BCI applications, for example, for personal authentication on mobile devices, VR (Virtual Reality) headsets, and Internet.

This special issue aims to introduce the recent progress of EEG-based biometrics and addresses the challenges in developing EEG-based biometry systems for various practical applications, while proposing new ideas and directions for future development.

Potential topics include but are not limited to the following:

- ▶ EEG biometry
- ▶ Data preprocessing, feature extraction, recognition, and matching for EEG-based biometric systems
- ▶ Signal processing and machine learning techniques for EEG-based biometrics
- ▶ EEG biometric based passwords and encryption
- ▶ Cancellable EEG biometrics
- ▶ Multimodal (EEG, EMG, ECG, and other biosignals) biometrics
- ▶ Pattern recognition for biometrics
- ▶ Performance and accuracy evaluation of EEG-based biometric systems
- ▶ Protocols, standards, and interfaces for EEG biometrics
- ▶ Security and privacy of biometric EEG data
- ▶ Information fusion for biometrics involving EEG data
- ▶ EEG biometrics for VR applications
- ▶ Stimuli sets for EEG-based biometrics
- ▶ Passive BCI technology

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

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

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