



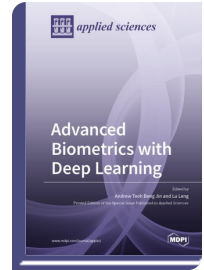
*Special Issue Reprint*

## Advanced Biometrics with Deep Learning

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Biometrics, such as fingerprint, iris, face, hand print, hand vein, speech and gait recognition, etc., as a means of identity management have become commonplace nowadays for various applications. Biometric systems follow a typical pipeline, that is composed of separate preprocessing, feature extraction and classification. Deep learning as a data-driven representation learning approach has been shown to be a promising alternative to conventional data-agnostic and handcrafted pre-processing and feature extraction for biometric systems. Furthermore, deep learning offers an end-to-end learning paradigm to unify preprocessing, feature extraction, and recognition, based solely on biometric data. This Special Issue has collected 12 high-quality, state-of-the-art research papers that deal with challenging issues in advanced biometric systems based on deep learning. The 12 papers can be divided into 4 categories according to biometric modality; namely, face biometrics, medical electronic signals (EEG and ECG), voice print, and others.

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