Abstract

A Pattern can be characterized by more or less rich & varied pieces of information of different features. The fusion of these different sources of information can provide an opportunity to develop more efficient biometric system which is known as Multimodal biometric System. Multimodal biometrics is the combination of two or more modalities such as signature and speech modalities. In this work an offline signature verification system and speech verification system are combined as these modalities are widely accepted and natural to produce. This combination of multimodal enhances security and accuracy. In this work, database can be gathered from 14 users. Each user contributes 4 samples of signature & speech also. Forgeries are also added to test system. 14 forgeries are used for testing purpose. SIFT features are extracted for offline signature which results as a feature vector of 128 numbers & MFCC features are extracted for speech which results as a feature vector of 195 numbers. Fusion at feature extraction level is used in this work by using a new technique named msum which can be proposed by combining sum method & mean method. The experimental results demonstrated that the proposed multimodal biometric system achieves a recognition accuracy of 98.2% and with false rejection rate (FRR) of = 0.9% & false acceptance rate (FAR) of = 0.
Efficient and Robust Multimodal Biometric System for Feature Level Fusion (Speech and Signature)

9%

References


**Index Terms**

Computer Science
Pattern Recognition

**Keywords**

Biometric Multimodal Biometrics Scale invariant features transform (SIFT) Mel Frequency Cepstral Coefficient (MFCC)

Feature level Fusion

False Accept Rate (FAR)

False Reject Rate (FRR).