

Multimodal Biometric System Iris and Fingerprint Recognition Based on Fusion Technique

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Abstract:

Biometric recognition (BR) is the act of automatically recognizing people based on their specific behavioral or biological features. It is a form of connection between someone and his/her real identity is it is not transferable and cannot be lost, shared, or copied. Biological trait-based identification is greatly important owing to the increase in the development of security systems. With the multimodal BR system, the primary aim is making decisions via identification of people based on their physiological traits. However, these BR systems are faced with difficulties when making these decisions due to the high dimension of unimodal features in the temporal domain. This article proposes a decision fusion technique for the combination of iris and fingerprint biometrics in a process devoid of any form of preprocessing; this approach is proposed based on the review of the existing literature in this domain. It involves the combination of fingerprint and iris biometrics using the Gray-Level Co-occurrence Matrix (GLCM) with KNN for feature extraction, while the AND gate is used making the final decision. From the results, the proposed fusion approach clearly performed better than approaches that are based on single modality; the proposed method achieved 95% efficiency level in terms of making final decision on 20 test users.