

## Implementation of a Multimodal Biometrics Recognition System with Combined Palm Print and Iris Features

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**Abstract :** With extensive application, the performance of unimodal biometrics systems has to face a diversity of problems such as signal and background noise, distortion, and environment differences. Therefore, multimodal biometric systems are proposed to solve the above stated problems. This paper introduces a bimodal biometric recognition system based on the extracted features of the human palm print and iris. Palm print biometric is fairly a new evolving technology that is used to identify people by their palm features. The iris is a strong competitor together with face and fingerprints for presence in multimodal recognition systems. In this research, we introduced an algorithm to the combination of the palm and iris-extracted features using a texture-based descriptor, the Scale Invariant Feature Transform (SIFT). Since the feature sets are non-homogeneous as features of different biometric modalities are used, these features will be concatenated to form a single feature vector. Particle swarm optimization (PSO) is used as a feature selection technique to reduce the dimensionality of the feature. The proposed algorithm will be applied to the Institute of Technology of Delhi (IITD) database and its performance will be compared with various iris recognition algorithms found in the literature.

**Keywords :** iris recognition, particle swarm optimization, feature extraction, feature selection, palm print, the Scale Invariant Feature Transform (SIFT)

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