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Novel Canonical Correlation Analysis Based Feature Level Fusion Algorithm for Multimodal Recognition in Biometric Sensor Systems

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A feature level fusion algorithm using canonical correlation analysis (CCA) is presented and applied to multimodal recognition based on fusion of Iris and Fingerprint. In this work, the extracted Iris and fingerprint features are fused to get a single feature vector which is highly discriminative than individual features. This method makes it possible to fuse the features together by measuring the linear relationship between them and decrease the dimension of the fusion feature. The results of experiments show that the CCA based algorithm is efficient for feature level fusion and, the Iris and Fingerprint based multimodal recognition performs better than Iris or Fingerprint unimodal biometric recognition. Additionally, the feature level fusion based on CCA presents improved performance when compared against match score level fusion method. The best performance is achieved with EER values of 0.17% for SDUMLA-HMT multimodal database.

Keywords: CANONICAL CORRELATION ANALYSIS; FEATURE FUSION TECHNIQUE; IRIS AND FINGERPRINT BIOMETRIC; MULTIMODAL BIOMETRIC SYSTEMS; PERFORMANCE EVALUATION

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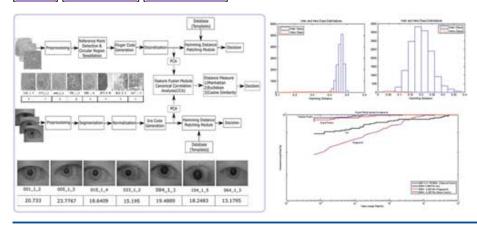Home Journals Books Encyclopedias New and Forthcoming Titles Contact ASP Search Keyword

Novel Canonical Correlation Analysis Based Feature Level Fusion Algorithm for Multimodal Recognition in Biometric Sensor Systems

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