

Face Recognition Based On Similarity Assessment Using Collaborative Image Of Classes

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ABSTRACT

In this thesis, we propose an innovative approach for face recognition based on collaborative image similarity assessment (CISA). In the proposed method, the test sample is first represented by a linear combination of all the training samples for each face class. The classification task is then carried out using the similarity measures, including the structure similarity index measure (SSIM), the root mean square (RMS), and the similarity assessment value (SAV). CISA is computationally efficient due to its one-phase when comparing with the method of two-phase test sample sparse representation (TPTSR) that suffers from the selection of M nearest neighbors of the test sample. To verify the performance of face classification, two popular face databases of the ORL and FERET are evaluated. Results show that CISA is comparable with TPTSR on the classification rate for the ORL database. However, CISA greatly outperforms TPTSR on the evaluation of the FERET database by 11.7% classification rate. Moreover, only 276.4 ms on an average is required for CISA in the classification of each test sample but it needs 800.8 ms for the method of TPTSR.

Keywords : face recognition、collaborative image、similarity assessment

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