Face Recognition Using Discrete Orthogonal Hahn Moments

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Abstract : One of the most critical decision points in the design of a face recognition system is the choice of an appropriate face representation. Effective feature descriptors are expected to convey sufficient, invariant and non-redundant facial information. In this work, we propose a set of Hahn moments as a new approach for feature description. Hahn moments have been widely used in image analysis due to their invariance, non-redundancy and the ability to extract features either globally and locally. To assess the applicability of Hahn moments to Face Recognition we conduct two experiments on the Olivetti Research Laboratory (ORL) database and University of Notre-Dame (UND) X1 biometric collection. Fusion of the global features along with the features from local facial regions are used as an input for the conventional k-NN classifier. The method reaches an accuracy of 93% of correctly recognized subjects for the ORL database and 94% for the UND database.