

A Novel Feature-Point Bilateral Face Recognition Method

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Abstract

In this paper, a novel feature-point bilateral recognition method for recognizing human faces is proposed. At first, from either an input face image or a reference face image, a set of distinct feature points is extracted by using a general salient point detection algorithm. Then, based on the detected feature points, a bilateral recognition is performed. Bilateral recognition means there are two ways of recognition, that is forward recognition and backward recognition. The forward recognition uses the feature points detected in an input image and searches their individual matched ones in the reference image through a block matching operation. Also, from the detected feature points and their matched ones, two geometrical models for describing their structure relationships are constructed respectively. With a model comparison design, the difference of the two geometric models is computed. Then, by associating the average matching strength and the difference of geometric models, the score of forward recognition is produced. Similarly, backward recognition can be also produced by just detecting feature points from a reference image and locating their individual matched ones in the input image. Finally, the forward score and the backward score are summed up into a bilateral score which is used to obtain recognition result. Experiments on two famous face databases show that the proposed algorithm get excellence recognition result and is complementary to traditional face recognition methods based on global feature.

Keyword : face recognition; feature point; block matching