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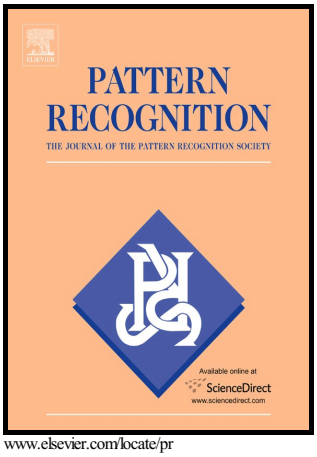

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Discriminative Multi-Scale Sparse Coding for Single-Sample Face Recognition with Occlusion☆

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Abstract

The single sample per person (SSPP) face recognition is a major problem and it is also an important challenge for practical face recognition systems due to the lack of sample data information. To solve SSPP problem, some existing methods have been proposed to overcome the effect of variances to test samples in illumination, expression and pose. However, they are not robust when the test samples are with different kinds of occlusions. In this paper, we propose a discriminative multi-scale sparse coding (DMSC) model to address this problem. We model the possible occlusion variations via the learned dictionary from the subjects not of interest. Together with the single training sample per person, most of types of occlusion variations can be effectively tackled. In order to detect and disregard outlier pixels due to occlusion, we develop a multi-scale error measurements strategy, which produces sparse, robust and highly discriminative coding. Extensive

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