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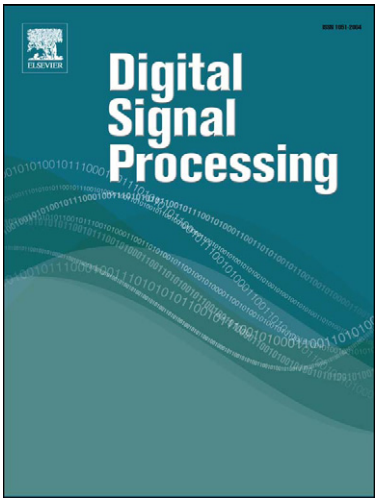

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A Novel Illumination-robust Local Descriptor Based on Sparse Linear Regression[☆]

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Abstract

Robust face recognition under uncontrolled illumination conditions is an important problem for real face recognition systems. In this paper, we introduce a novel illumination-robust local descriptor named Sparse Linear Regression Binary (SLRB) descriptor. The SLRB descriptor is a bit string by binarizing the sparse linear regression coefficients in a local block. It is an illumination-insensitive descriptor based on the locally linear consistency assumption under the Lambertian reflectance model. We use the cosine similarity and Hamming similarity as the similarity measure for the SLRB descriptor of two different images respectively. Experimental results on the Extended Yale-B and CMU-PIE face database show a promising performance compared to the existing representative approaches.

Keywords: Face recognition, illumination-insensitive representation, local descriptor, sparse linear regression

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