

博士论坛

NMF与LDA相结合的彩色人脸识别

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摘要 为了提高彩色人脸识别的性能, 提出了一种非负矩阵分解与线性判别分析相结合的彩色人脸识别算法。首先采用非负矩阵分解算法对彩色人脸图像不同颜色通道的信息进行编码, 计算彩色人脸图像空间的基图像; 然后根据非负矩阵分解计算得到的图像分解系数, 融入人脸对象的类别信息, 采用线性判别分析算法计算最优的鉴别子空间; 最后以彩色人脸图像的投影系数为特征, 采用最近邻分类算法进行人脸识别。在CVL和CMU PIE人脸数据库上的实验结果验证了提出的彩色人脸识别算法的正确性和有效性。

关键词 [人脸识别](#) [非负矩阵分解](#) [线性判别分析](#)

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Non-negative matrix factorization combined with linear discriminant analysis for color face recognition

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Abstract

In order to improve the accuracy of color face recognition approach, non-negative matrix factorization is combined with linear discriminant analysis algorithm in this paper. Non-negative matrix factorization algorithm is employed to encode the color information of different channels of color face image. And base images are computed by the NMF algorithm. Linear discriminant analysis algorithm is exploited to compute the optimal discriminant subspace based on the factorization coefficients of face images. Nearest neighborhood classifier is adopted to identify the color face samples based on the projective coefficients on the subspace. Experimental results on CVL and CMU PIE color face databases verify the effectiveness of the proposed algorithm.

Key words [face recognition](#) [non-negative matrix factorization](#) [linear discriminant analysis](#)

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