工程与应用

基于对角DCT与2DPCA算法的人脸识别

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摘要　　提出了一种对角离散余弦变换（Discrete Cosine Transform,DCT）和二维主元分析（Two－Dimensional Principal Component Analysis,2DPCA）相结合的人脸识别方法。该算法首先将人脸图像转换成对角图像,同时利用DCT压缩并重建人脸图像;然后通过2DPCA进行特征提取得到人脸识别特征;最后运用最近邻分类器进行识别。基于ORL（Olivetti Research Laboratory）、受污损ORL及Yale人脸数据库的实验结果证明了该算法的有效性。

关键词　　离散余弦变换　二维主元分析　图像重建　人脸识别

分类号

Face recognition based on diagonal Discrete Cosine Transform and Two－Dimensional Principal Component Analysis

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Abstract

　Combined with Discrete Cosine Transform（DCT）　and Two—Dimensional Principal Component Analysis （2DPCA）,a novel method in face recognition was presented in this paper.Firstly,face image is turned into diagonal image,and dimension is reduced by DCT.Then image is reconstructed by IDCT.Secondly,2DPCA is used in feature extraction,and face recognition features are obtained.Finally,the Nearest Neighbor（NN）　classifier is selected to perform face recognition.Experimental results on ORL（Olivetti Research Laboratory）,damaged ORL and Yale face database show that the method is efficient in face recognition.

Key words　Discrete Cosine Transform（DCT）　Two－Dimensional Principal Component Analysis （2DPCA）　image reconstruction　face recognition

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