

Automatic Texture Inspection in the Classification of Papers and Cloths
with Neural Networks Method

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Abstract

The object of this study is to use colors and textures to classify color objects. To achieve the objective, first, the color image is transformed from RGB model to other suitable color model, and then one of the components is chosen as the gray-level image for extracting textures. Second, the gray-level image is decomposed into four child images using wavelet transformation. Third, the two child images capable of detecting variations along columns and rows are used to generate 0-degree and 90-degree co-occurrence matrices, respectively. Fourth, some of the distinguishable texture features are derived from the two co-occurrence matrixes. Finally, the test image is classified using neural networks. Nine color papers and eight color cloths are used to test the developed classification method. The results show that higher recognition rate can be achieved if color and texture features are used simultaneously as inputs to the networks.

Keyword : Classification, Texture Analysis, Wavelet Transformation, Co-occurrence Matrix, Neural Networks