Abstract

Texture is an important spatial feature, useful for identifying objects or regions of interest in an image. One of the most popular statistical methods used to measure the textural information of images is the grey-level co-occurrence matrix (GLCM). The other statistical approach to texture analysis is the texture spectrum approach. The present paper combines the fuzzy texture unit
and GLCM approach to derive a Left Right Texture Unit Matrix (LRTM). The LRTM approach considers the two sets of four connected texture elements on a 3×3 grid for evaluating the TU instead of non-connected or corner texture elements as in the case of Cross Diagonal Texture Unit Matrix (CDTM). The co-occurrence features extracted from the LRTM provide complete texture information about an image, which is useful for classification. The performance of these features for classification/discrimination of the texture images has been evaluated. The LRTM texture features are compared with original texture spectrum features in discriminating/classification of some of the VisTex natural texture images. The proposed LRTM reduces the size of the matrix from 6561 to 79 as in the case of original texture spectrum and 2020 to 79 as in the case of fuzzy texture spectrum approach. Thus it reduces the overall complexity. The experimental results indicate the efficacy of the proposed method.

Reference

- An introduction to texture tiling using characteristics of the texture itself. Available at http://paulbourke.net/texture_colour/bark/

Index Terms

Computer Science
Pattern Recognition

Key words

Grey-level co-occurrence matrix
Cross Diagonal Texture Unit Matrix
Left Right Texture Unit Matrix
Texture

spectrum