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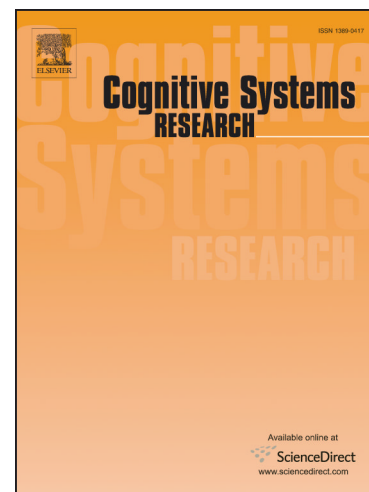
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An Efficient Texture Classification Algorithm using Integrated Discrete Wavelet Transform and Local Binary Pattern features.

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Abstract -This manuscript is keen to the Texture Classification problem. Texture is mainly defined as measuring the variation in the surface intensity such as regularity, smoothness, coarseness, etc. Texture classification is one of the most important issues in image processing and computer vision. Orientation, scale, image transitions or singularities such as edges, and the other visual appearance are the major problems in texture classification. Already works have done in texture classification by using Discrete Wavelet Transforms (DWT) and Local Binary Pattern (LBP) separately. The above techniques give minimum classification Accuracy. LBP is considered as an effective method but its performance is lower if the image has poor quality. We propose a technique to characterize the texture properties based on DWT using Local Binary Pattern. In this proposed work, input texture images are decomposed using single level Discrete Wavelet Transform. Then LBP features are extracted from all sub bands. The extracted LBP features for sub bands are combined to form main feature (1024 features). Image classification is done by using k-Nearest Neighbour (kNN) Classifier. The experiments validation are achieved by using four standard data sets (KTH-TIPS, KTH-TIPS-2a, Brodatz and CURET). The results are compared with Dense Micro block Difference (DMD) feature descriptors. The experimental result shows that the proposed method outperforms than the existing techniques. Also reduce the computational complexity and minimum computational time than the existing classification techniques.

Keyword: *Texture classification, local binary pattern, Discrete Wavelet Transform, k-NN Classifier*

1.INTRODUCTION:

Texture in image processing is defined as the collection of metrics calculated to analyse the image perceived texture. The texture images give more statistics concerning the spatial pattern of intensities and color in the images or specific part of image. Textures are the property that appears on the structure or surface of the object such as clothes pattern, textile structure, fingerprint of person, etc. In other word, characteristics described by the texture include pattern, shape and coarseness that can be noticed on the surface of certain object. Where, these characteristics proved that textures are used in our day today life. Such important features has caused the textures are extensively used in many real time application such as getting the textured region in document processing, classifying the grounded and ungrounded area from satellite images ,Industrial and bio medical surface inspection for determining the defects and diseases. Texture analysis plays a major role in many of the application like classification and segmentation based on the spatial variation in local color or intensity. Texture image

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