Abstract

Texture is a very important feature extremely used in various image processing problems. Human beings are used some texture based perceptual features to distinguish between textured images or regions. These Perceptual features are highly desirable for two reasons; they will be optimum in terms of feature selection and will be applicable to all kinds of textures. Some of the important perceptual features are coarseness, contrast, directionality and busyness. This paper proposed a new perception-based approach to content-based image classification and retrieval. The proposal is based on multiple representations: Original Image Representation and Autocorrelation Function Representation. The computational measures for textural features are computed both on original image and autocorrelated image. In order to validate these features measures, applied them for texture classification and retrieval on brodatz images. For texture classification, features computed on Multiple representation correctly classified the best matching class among the existing class in comparison with original representation based features and autocorrelation representation based features. K-Nearest Neighborhood classifier is used for this classification task. For texture retrieval, Multiple representation based features retrieved more number of relevant images in comparison with features derived from autocorrelation representation. Gower co-efficient of similarity is used to find the feature similarity between images in retrieval task. Thus this work attained good
classification rate of 93.5% and better retrieval rate by using these estimated features on our approach.

References

Multiple Representations of Perceptual Features for Texture Classification and Retrieval

Keywords
Multiple Representations  Perceptual Features  Texture  Texture Classification  Texture Retrieval

Index Terms
Computer Science  Pattern Recognition