Abstract

This present a hybrid approach of image classification using KNN and feature extraction using LBP and steerable pyramid based image retrieval system that uses color, contours and texture as visual features to describe the content of an image. In this k-nearest neighbor image classification mechanism is used to fetch the appropriate images from the database image set using the query image and the database images are reduced to images returned after classification mechanism which leads to decrease in the number of irrelevant images. Steerable pyramid applied to extract features from query image and candidate images retrieved from the KNN and store them in feature features. Local Binary Pattern (LBP) is one of the techniques used in image classification and has been used for extracting the shape of the images. The experimental evaluation of the system is based on a Wang data set. Various parameters like precision, recall, computation time and matching time have been computed to analyze the results that are recorded iteratively for different images as input. From the experimental results, it is evident that proposed system performs significantly better and faster compared with other existing systems. The results demonstrate that each type of feature is effective for a particular
type of images according to its semantic contents, and using a combination of them giving better retrieval results for almost all different classes of images in the data set.

References


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Index Terms

Computer Science | Pattern Recognition

Keywords

CBIR, Colour histogram, Colour, shape, texture, LBP, KNN, Steerable pyramid.