Abstract

A novel technique for Content based image retrieval (CBIR) that employs color histogram and color moment of images is proposed. The color histogram has the advantages of rotation and translation invariance and it has the disadvantages of lack of spatial information. In this paper, to improve the retrieval accuracy, a content-based image retrieval method is proposed in which color histogram and color moment feature vectors are combined. For color moment, to improve the discriminating power of color indexing techniques, a minimal amount of spatial information is encoded in the color index by dividing the image horizontally into three equal non-overlapping regions. The three moments (mean, variance and skewness) are extracted from each region (in this case three regions), for all the color channels. Thus, for a HSV color space, 27 floating point numbers are used for indexing. The HSV (16, 4, 4) quantization scheme has been adopted for color histogram and an image is represented by a vector of 256-dimension. Weights are assigned to each feature respectively and calculate the similarity with combined features of color histogram and color moment using Histogram intersection distance and Euclidean distance as similarity measures. Experimental results show that the proposed method has higher retrieval accuracy in terms of precision than other conventional methods combining color histogram and color moments based on global features approach.
References


Index Terms

Computer Science
Pattern Recognition

Keywords
Image Retrieval based on the combination of Color Histogram and Color Moment

CBIR  color feature  color histogram  color moment  Euclidean distance  Canberra distance