Abstract

Content-Based Image Retrieval (CBIR) systems help users to retrieve relevant images based on their contents such as color and texture. In this paper, a new approach is proposed in which color histogram, color moment and Gabor texture descriptors are integrated. The color histogram has the advantages of rotation and translation invariance. The HSV (16, 4, 4) quantization scheme has been adopted for color histogram and an image is represented by a vector of 256-dimension. The color histogram has the disadvantages of lack of spatial information and 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 and extracts the three moments (mean, variance and skewness) from each region, for all the color channels. Thus, for a HSV color space, 27 floating point numbers per image are used for indexing. As its texture feature, Gabor texture descriptors are adopted. Weights are assigned to each feature respectively and calculate the similarity with combined features of color histogram, color moment and Gabor texture using Histogram intersection distance and Canberra 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, color moment and Gabor texture based on global features approach.
References

- Yu-guang, Ye. 2007. &quot;Research of image Retrieval based on fusing with multi-character&quot;, Hua Qiao University, pp. 14-16.
- Stricker, M. and Orengo, M. 1995. &quot;Similarity of color images&quot;, In SPIE Conference on Storage and Retrieval for Image and Video Databases, volume 2420, pp. 381-392, San Jose, USA.
Content based Image Retrieval based on the integration of Color Histogram, Color Moment and Gabor Texture

Color and Texture”, Computational Intelligence, Communication Systems and Networks, pp. 403-408.

Index Terms

Computer Science Image Processing

Keywords

CBIR color feature color histogram color moment Gabor texture Canberra distance