Abstract

Simulating human visual attention mechanism for image classification and retrieval has become one of the active research areas in recent years. Content Based Image Retrieval (CBIR) using visual saliency features is one such approach where image classification and retrieval task is motivated by the human visual attention mechanism. It is a very challenging task in CBIR to simulate human visual attention mechanisms. In this work, we propose a CBIR system based on visual attention model for image classification and retrieval. In the proposed system the visual attention model proposed by Radhakrishna Achanta is used to find out the saliency map. Zernike moments are used to extract shape features of the saliency map. Coiflet discrete wavelet transform is used to extract texture feature of the image by decomposing it into three levels. Mean, standard deviation and skewness are extracted from each of the 12 subimages. Color moments are extracted as color features for the images. These color features, texture features and saliency based shape features are investigated for image retrieval. Performances of three approaches using these features are evaluated on two well-known datasets. The experimental results clearly demonstrate that combination of Zernike Moment, Color Moment and Wavelet Momentgives a robust system with best classification and retrieval rate.

Keywords : CBIR , Saliency map, Shape features, Color features, Texture features , Zernike moment, CoifletWavelet, Wavelet moment,Color moment.