

Content-based image retrieval based on color-spatial features

ABSTRACT

A novel technique for Content-Based Image Retrieval (CBIR) that employs both the color and spatial information of images is proposed. A maximum of three dominant color regions in an image together with its respective coordinates of the Minimum-Bounding Rectangle (MBR) are first extracted. Next, the Sub-Block technique is then used to determine the location of the dominant regions by comparing the coordinates of the regions MBR with the four corners of the center of the location map. The cell number that is maximally covered by the region is supposedly to be assigned as the location index. However, the Sub-Block technique is not reliable because in most cases, the location index assigned is not the cell number that is maximally covered by the region and sometimes a region does not overlap with the cell number assigned at all. The effectiveness of this technique has been improved using the Improved Sub-Block technique by taking into consideration the total horizontal and vertical distances of a region at each location where it overlaps. The color-spatial technique is accessed on a Query-by- Example CBIR system consisting of 900 images. From the experiments it is shown that retrieval effectiveness has been significantly improved by 85.86%.

Keyword: Color; Content-based image retrieval (CBIR); Query-by-example; Spatial