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KEY WORD: IMAGE RETRIEVAL/ IMAGE INDEXING/ INTERSECTION

CHARTCHAKAN PAIBOOLSIRIKUL: COLOR IMAGE RETRIEVAL BY SUBIMAGE QUERY. THESIS ADVISOR: ASST. PROF. NONGLUK COVAVISARUCH, 84 pp. ISBN 974-17-0053-9.

The purpose of this research is to develop a technique which is robust to image scaling for color image retrieval by subimage query using color feature. This research proposes a new image feature as an image indexing tool called Color Region Correlation (CRC) which represents the number of other regions that are correlated within the bounding territory of individual color region. In the retrieval process, the CRC index keeps the number of correlated regions of all regions that have the same color, and the number of regions of each color. When a query exists, CRC index of the query image is created, and this index is compared with the index of each image in image database by using the difference of the average CRC of the query image and the average CRC from the intersection between the index of the query image and the index of the compared image. The result indicates the probability to find the query image in the compared image.

Retrieval of color images by subimage query using the CRC index has been experimented in this research. The experimental results are evaluated and compared with other methods: the image retrieval by image indexing with color histogram, color autocorrelogram and color correlogram. From the experiments on retrieval of scaled relevant images, it has been found that CRC is more efficient than other methods. The retrieval time consuming with CRC indexing is less than that with correlogram indexing and closed to that with autocorrelogram indexing. Moreover, the experiments on retrieving of image sets which have the same objects of several sizes and views as the relevant images reveal that the CRC indexing has better performance compared to color histogram indexing and color autocorrelogram indexing. It can be concluded from this research that CRC indexing is robust to scaled images and can be used for color image retrieval by subimage query.