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AUTOMATIC IMAGE ANNOTATION AND RETRIEVAL USING THE JOINT COMPOSITE DESCRIPTOR.

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Abstract—Capable tools are needed in order to successfully search and retrieve a suitable image from large image collections. Many content-based image retrieval systems employ low-level image features such as color, texture and shape in order to locate the image. Although the above approaches are successful, they lack the ability to include human perception in the query for retrieval because the query must be an image. In this paper a new image annotation technique and a keyword-based image retrieval system are presented, which map the low-level features of the Joint Composite Descriptor to the high-level features constituted by a set of keywords. One set consists of colors-keywords and the other set consists of words. Experiments were performed to demonstrate the effectiveness of the proposed technique.

Keywords-Image Retrieval; Image Annotation; Joint Composite Descriptor; CCD; JCD

images. In [8], support vector machines (SVMs) are employed to categorize images using the HSV color histograms. Bayesian classifiers on the color and edge direction histograms are used in order to classify sunset/forest/mountain images and city/landscape images [9]. Color features, shape features and wavelet-based texture features are used for automatic image annotation in [10] using SVMs and Bayes point machines (BPM). Comprehensive surveys of the automatic image annotation methods are available at [11] and [12]. On-line image annotation retrieval systems are available at [5] and [13].

The proposed method employs the Joint Composite Descriptor (JCD) [14] and utilizes two sets of keywords in order to map the low-level features of the descriptor to the high-level features constituted by these keywords. One set