

COLOR IMAGE RETRIEVAL SCHEMES USING INDEX HISTOGRAMS BASED ON VARIOUS SPATIAL-DOMAIN VECTOR QUANTIZERS

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ABSTRACT. *This paper proposes two new compressed-domain features for color image retrieval based on the YCbCr color space. They are named Multi-Stage Vector Quantization Index Histograms (MSVQIH) and Mean-Removed Vector Quantization Index Histograms (MRVQIH). For each color component, to obtain the MSVQIH features, we extract two MSVQ Index histograms from the two stage VQ index sequences respectively. Similarly, to obtain the MRVQIH features, we extract two MRVQ index histograms from the mean index and residual VQ index sequences respectively. The retrieval simulation results show that, compared with the traditional Spatial-domain Color-Histogram-based (SCH) features and Vector Quantization Index Histograms-based (VQIH) features, the proposed two kinds of features can largely improve the recall and precision performance.*

Keywords: Image retrieval, Vector quantization, Index histogram

1. Introduction. With the rapid development of computer, multimedia and network technologies, a large amount of image and video data are created and broadly distributed over Internet or via CD-ROM. However, without effective image retrieval it is impossible to make use of the huge image databases. There are basically three ways of retrieving previously stored multimedia data, i.e., free browsing, text-based retrieval and content-based retrieval. Free browsing is only acceptable for the occasional user and cannot be extended to users who frequently need to retrieve specific multimedia information for professional applications. It is a tedious, inefficient, and time-consuming process and it becomes completely impractical for large databases. Text-based retrieval has two big problems associated with the cataloguing phase: 1) the considerable amount of time and