

Abstract

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An Efficient Content-based Image Retrieval System Integrating Wavelet-based Image Sub-blocks with Dominant Colors and Texture Analysis

There is a great need of developing efficient content-based image retrieval systems (CBIR) because of the availability of large image databases. Three new image retrieval systems to retrieve the images using color and texture features are proposed. The image is divided into equal sized non-overlapping tiles. The discrete wavelet transform, HSV color feature, cumulative color histogram, dominant color descriptor (DCD) and Gray level co-occurrence matrix (GLCM) are applied to image partitions. An integrated matching scheme based on Most Similar Highest Priority (MSHP) principle is used to compare the query and database images. The adjacency matrix of a bipartite graph is formed using the sub-blocks of query and images in the database. The proposed techniques indeed outperform other retrieval schemes in terms of average precision and average recall. The developed techniques are able to perform scale, translation, and rotation invariant matching between images. In the future, we need to reduce the semantic gap between the local features and the high-level user semantics to achieve higher accuracy.