

were computed separately. The hue histogram had 360 bins and the saturation histogram had 100 bins. This means that each image is represented by 460 numbers. For local histogramming, we divided each image into 4*4 blocks. To minimize the representation space, it was decided to perform color quantization following the approach suggested in¹⁰. This resulted in 16 bins for hue and 8 bins for saturation for each local histogram. Thus in this case each image was represented by 16*(16+8) numbers. The Color-WISE representation in this experiment consisted of 16 image blocks with two numbers, dominant hue and saturation, per block.

To compare different schemes, identical query image was given to each scheme. In each case, the performance was subjectively graded. This process was repeated several times with randomly selected query images. Figures 7-9 show the three sets of retrieved images for the same query image. Overall, the local histogramming and Color-WISE were found to yield similar retrieval performance in terms of the acceptability of the retrieved images. The global histogramming scheme in comparison did not perform that well. Thus, Color-WISE representation scheme offers a compact way of encoding color composition of images.

4. SUMMARY AND FUTURE WORK

A system for image similarity retrieval using color feature was presented. The salient characteristic of the system described is its use of a compact representation to capture color distribution information in images. It was shown that this compact representation scheme is capable of yielding retrieval results similar to those obtained by local histogramming requiring much higher representation space. Our future work is moving along three directions. First, we are investigating a neural network-based search scheme to identify target images. We believe that such a scheme would improve the query response time. Second, we are integrating Color-WISE with other WISE modules to incorporate shape and texture information. Finally, we are investigating methods that will allow integration of semantic information in the retrieval process.

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