Abstract

The theme of the work presented here is performance comparison of gradient mask texture based image retrieval techniques using global and local hybrid wavelet transforms generated from the combination of Walsh, Haar and Kekre transforms. Ternary image maps of Prewitt/Robert/Sobel filtered images are compared with '64-pattern' texture set generated using local and global hybrid wavelet transforms for matching number of ones, minus ones & zeros per texture pattern. The proposed content based image retrieval (CBIR) techniques are tested on a generic image database having 1000 images spread across 11 categories. For each proposed CBIR technique 55 queries (randomly selected 5 per image category) are fired on the image database. To compare the performance of image retrieval techniques average precision and recall of all the queries per image retrieval technique are computed. In the discussed image retrieval methods, the '64-pattern' shape texture generated using Haar-Walsh (HW) global hybrid wavelet transform matrix with Sobel as
gradient operator gives the highest crossover point of precision and recall indicating better performance.

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**Index Terms**

Computer Science  
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Keywords
Cbir  Walsh  Haar  Kekre  Hybrid Wavelet Transforms  Texture Patterns  Shape  Ternary Image Maps