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.

References

- Dr. H. B. Kekre, Sudeep D. Thepade, "Boosting Block Truncation Coding using


- Stian Edvardsen, “Classification of Images using color, CBIR Distance Measures and Genetic Programming”; Ph. D. Thesis, Master of science in Informatics, Norwegian university of science and Technology, Department of computer and Information science, June 2006.


- Dr. H. B. Kekre, Sudeep D. Thepade, “Improving Color to Gray and Back; using Kekre’s LUV Color Space”; IEEE International Advanced Computing Conference 2009 (IACC’09), Thapar University, Patiala, INDIA, 6-7 March 2009. Is uploaded at online at IEEE Xplore.


Performance Comparison of Gradient Mask Texture based Image Retrieval Techniques using Global and Local Hybrid Wavelet Transforms with Ternary Image Maps

Technology, (ICETET-08), G. H. Raisonoi COE, Nagpur, INDIA. Uploaded on online IEEE Xplore.

- http://wang.ist.psu.edu/docs/related/Image.orig (Last referred on 23 Sept 2008)
- Dr. H. B. Kekre, Sudeep D. Thepade, &quot;Using YUV Color Space to Hoist the Performance of Block Truncation Coding for Image Retrieval&quot;, IEEE International Advanced Computing Conference 2009 (IACC'09), Thapar University, Patiala, INDIA, 6-7 March 2009.
- Dr. H. B. Kekre, Sudeep D. Thepade, Archana Athawale, Anant Shah, Prathmesh Verlekar, Suraj Shirke, &quot;Performance Evaluation of Image Retrieval using Energy Compaction and Image Tiling over DCT Row Mean and DCT Column Mean&quot;, Springer-International Conference on Contours of Computing Technology (Thinkquest-2010), Babasaheb Gawde Institute of Technology, Mumbai, 13-14 March 2010, The paper will be uploaded on online Springerlink.
- Dr. H. B. Kekre, Tanuja K. Sarode, Sudeep D. Thepade, Vaishali Suryavanshi, &quot;Improved Texture Feature Based Image Retrieval using Kekre's Fast


**Index Terms**

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