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


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&apos;09), Thapar University, Patiala, INDIA, 6-7 March 2009. Is uploaded at online at IEEE Xplore.


Technology, (ICETET-08), G. H. Raisoni 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&amp;apos;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&amp;apos;s Fast
Performance Comparison of Gradient Mask Texture based Image Retrieval Techniques using Global and Local Hybrid Wavelet Transforms with Ternary Image Maps

Codebook Generation Algorithm


Index Terms

Computer Science
Signal Processing
Keywords
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