Abstract

The image retrieval problem has recently become more important and necessary because of the rapid growth of multimedia databases and digital libraries. Different search engines use different features to retrieve images from the database. In this paper, the Contourlet Transform is developed to retrieve similar images from the image database. By combining the Laplacian
pyramid and the Directional Filter Bank (DFB), a new image representation is obtained. The
direction subbands coefficients are used to form a feature vector for classification. The
performance of the Contourlet Transform is evaluated using standard bench marks such as
Precision and Recall. An experiment shows that the Contourlet Transform (CT) features provide
the best results in Image Retrieval.

Reference

  integrated color, shape, and location index,” computer vision and image understanding, October
  2003.
- Minh N. Do, Member, IEEE, and Martin Vetterli, Fellow, IEEE," Wavelet-Based Texture
  Retrieval Using Generalized Gaussian Density and Kullback-Leibler Distance,” IEEE
- Dr. Fuhui Long, Dr. Hongjiang Zhang and Prof. David Dagan Feng," Fundamentals of
  Content-Based Image Retrieval,” Project Report
- Michael Eziashi Osadebey ,“ Integrated content -based image retrieval using texture ,
  shape and spatial information ,”Master Thesis Report in Media Signal Processing , Department
  of Applied Physics and Electronics, Umea University, Umea Sweden.
- Guojun Lu and Shyhwei Teng," A Novel Image Retrieval Technique based on Vector
  Quantization," Technical Report, Gippsland School of computing and Information Technology,
  Monash University, Gippsland Campus, Churchill, Vic 3842.
- Ch.Srinivasa rao *, S. Srinivas kumar #, B.N.Chatterji ," Content Based Image Retrieval
  using Contourlet Transform ”,Research scholar, ECE Dept., JNTUCE, Kakinada, A.P, India. ,
  Professor of ECE, JNTUCE, Kakinada, A.P, India. Former Professor, E&ECE Dept., IIT,
  Kharagpur, W.B, India.
- 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.
- Rami Al-Tayeche & Ahmed Khalil,"CBIR: Content Based Image Retrieval,” Project
  Report, Department of systems and computer Engineering, Faculty of  Engineering, Carleton
  University, April 4, 2003.
- Michele Saad," Content Based Image Retrieval Literature Survey “,EE 381K: Multi
  Dimensional Digital Signal Processing , March 18, 2008
- Asadollah Shahbahrami , Demid Borodin , Ben Juurlink ,” Comparison Between Color
  and Texture Features for Image Retrieval “,Report, Faculty of Electrical Engineering,
  Mathematics, and Computer Science Delft University of Technology, The Netherlands
- Manesh Kokare, B.N. Chatterji and P.K. Biswas ,” Wavelet Transform Based Texture
  Features For Content Based Image Retrieval“, Electronics and Electrical Communication
  Engineering Department, Indian Institute of Technology, Kharagpur PIN 721 302, India
- Lei Zhu, Chun Tang, Aibing Rao and Aidong Zhang,”Using Thesaurus To Model
  Keyblock-Based Image Retrieval ,” Technical Report, Department of Computer Science and
Image Retrieval using Contourlet Transform

Engineering, State University of New York At Buffalo, Buffalo, NY 14260, USA.

Index Terms

Computer Science

Image Processing

Key words

Content Based Image Retrieval (CBIR)
Contourlet Transform (CT)

Laplacian Pyramid (LP)

Directional Filter Bank (DFB)