Abstract

In this paper, analysis of the feature selection for scale invariance texture image retrieval using fuzzy logic classifier and wavelet and co-occurrence matrix based feature is carried out. Two types of texture features are extracted one using Discrete Wavelet Transform (DWT) and other using Co-occurrence matrix. Energy and Standard Deviation are obtained from each sub-band.
of DWT coefficients up to fifth level of decomposition and eight features are extracted from co-occurrence matrix of whole image and each sub-band of first level DWT decomposition. The different size samples of texture image are undertaken. The suitability of features extracted is analyzed using a fuzzy logic classifier. The performance is measured in terms of Success Rate. Best and Worst case analysis is done for each of the feature set and texture image size. Also the minimum number of features required for maximum average success rate is obtained. This study shows that for samples taken from 256x256 texture size, excellent success rate is achieved for Wavelet Statistical Features (WSF) as well as Wavelet Co-occurrence Features (WCF). Also WSF perform better for 128x128 and 256x256 texture image. For both the types of features performance degrades in case of 512x512 texture image. Worst case analysis shows that energy feature WSF and 8-features group WCF performs excellently.

Reference

- J. R. Smith and S. F. Chang 1996 Automated binary texture feature sets for image retrieval, Proc. ICASSP, Atlanta, GA.
On Scale Invariance Texture Image Retrieval using Fuzzy Logic and Wavelet Co-occurrence based Features


Index Terms

Computer Science

Computer Vision

Key words

Discrete Wavelet Transform

Wavelet Statistical features

Wavelet Co-occurrence matrix features