

IMPLEMENTATION OF DIMENSION FRACTAL IMAGE SEGMENTATION USING MATLAB

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Abstract

The term fractal is used to designate objects that are self-similar and have details at different scales. Fractal Dimension (FD) is a measure to quantify how densely fractal occupies the space in which it lies. This characteristic has been used in texture classification, segmentation, clustering, edge detection and other problems. Usual segmentation techniques of grayscale images depend on supervised trial-and-error procedures. Moreover, in noisy images, local classification schemes fail due to the random fluctuations introduced by the noise.

In this paper we explain different approach to noisy image segmentation, based on fractal dimension classification. Instead of detecting local changes in the image grey level. Histogram classification of this attribute of the image allows adequate threshold detection. There fore, the complete segmentation procedure is fully automatic. The segmentation results obtained with this classification procedure are remarkably robust, even with images with non-additive noise.

Keywords: Fractal Segmentation, Bayesian Classification, Minimum Thresholding, Box-Dimension Histogram Analysis.