Abstract

Segmentation is a process of separating the objects from background. Several GA-based approaches have been used to improve the quality of image segmentation in the past based on thresholds, edge detection, region and cluster detection and morphology. The proposed GA-based approach gives us good results for the segmentation of binary images using different image parameters namely the image block size 4×4, 8×8, and 16×16 pixels, the difference between the object and background intensities. Also the proposed approaches gives us best segmentation results for various GA parameters is considered that include population size (minimum 40), number of GA generations i.e. 80 and crossover rate more than 0.50 and less than or equal 0.70 and mutation rate between 0.01 and 0.08. The results obtained give 100% pixel classification accuracy for Speckle noise with noise levels more than 2.70 dB SNR and 93% to 96% for salt and pepper noise levels (SNR ranging between 7.69 dB to 11.92 dB). The segmentation results obtained by using proposed GA-based method are good with the increasing noise density of Speckle as compared to salt and pepper noises.
Effect of Different Parameters on Segmentation of Binary Images using Genetic Algorithms

References


Index Terms

Computer Science   Artificial Intelligence

Keywords
Genetic Algorithm, GA Parameters, Image Parameters and Image Segmentation.