Abstract

For the study of anatomical structure and image processing of MRI medical images, techniques of noise removal have become an important practice in medical imaging applications. In medical image processing, precise images need to be obtained to get accurate observations for the given application. The goal of any de-noising technique is to remove noise from an image which is the first step in any image processing. The noise removal method should be applied watchful manner otherwise artefacts can be introduced which may blur the image. In this paper, performance evaluation of the of MRI image de-noising techniques is provided. The techniques used are namely the median and Gaussian filter, Max filter [11], Min filter [11], and Arithmetic Mean filter [8]. All the above filters are applied on MRI brain and spinal cord images and the results are noted. A new method is proposed which modifies the existing median filter by adding features. The experimental result of the proposed method is then analyzed with the other three image filtering algorithms. The output image efficiency is measured by the statistical parameters like root mean square error (RMSE), signal-to-noise ratio (SNR), peak signal-to-noise ratio (PSNR).
References


Index Terms

Computer Science

Signal Processing

Keywords
Noise removal, median, mean filter, MRI