Abstract

Reducing or removing random noise from medical image is a very active research area in medical image processing. In recent years, technological development has significantly improved in analyzing medical images. This paper proposes various fuzzy hybrid filtering techniques for the removal of random noise from medical images, by topological approach. Each of these fuzzy filters, which apply a weighted membership function to an image within a 8-neighbours of a point, is simple and easy to implement. The quality of the noise reduction in images is measured by the statistical quantity measures: Root Mean Square Error (RMSE) and Peak Signal-to-Noise Ratio (PSNR). The performances of these fuzzy filters on images tainted with low, medium and high random noise are compared with various existing filtering techniques.
Fuzzy Hybrid Filtering Techniques for Removal of Random Noise from Medical Images


Index Terms
Computer Science Image Processing

Keywords
Ultrasound Medical Image Fuzzy hybrid filters Random noise Noise reduction