Multiplicative Noise Reduction using Fuzzy Logic and Feature Analysis of Ultrasound Images

Abstract

Ultrasound imaging is a vital tool for diagnosis in the field of biomedical imaging used to detect various types of abnormalities or diseases. Unfortunately, the multiplicative noise which coexists in these images makes it very challenging and difficult for doctors to provide accurate diagnosis. Multiplicative noise reduction is thus an important task for developing effective diagnosis system. In this paper, fuzzy logic is implemented to reduce multiplicative noise. Feature analysis like segmentation, determining region of interest and seed point selection is carried out and different existing de-noising algorithms are compared with the proposed method. The paper presents performance comparisons in terms of improvement in signal to noise ratio (SNR) of the proposed scheme with respect to MSE (Mean Square Error).

References

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Index Terms

Computer Science

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Keywords

Multiplicative Noise  Speckle Noise  Fuzzy Logic  Ultrasound  Denoising  Despeckle
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Peak Signal To Noise Ratio.