

A NEW APPROACH FOR DESPECKLING OF MEDICAL ULTRASOUND IMAGES

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ABSTRACT

Ultrasound Imaging is a widely used medical diagnostic technique because of its capability of forming real time imaging and low cost. However, ultrasound images are degraded due to the presence of intrinsic artifact called speckle. There are two main reasons for despeckling medical ultrasound images 1) To improve the human interpretation 2) Despeckling is a preprocess step for many ultrasound image processing tasks. A number of methods have been proposed for speckle reduction in ultrasound imaging. This paper focuses on edge detection and speckle reduction techniques. The performance comparison in terms of improvement in mean square error (MSE), signal-to-noise ratio (SNR), peak signal-to-noise ratio (PSNR), correlation coefficient (Coc) of the proposed scheme with other standard speckle reduction techniques such as Lee filter, NL-Mean Filter and edge detection techniques such as sobel, prewitt and, other proposed filter is presented. The obtained shows the efficacy of the proposed scheme.

KEYWORDS: Ultrasound Imaging (US), Mean Square Error (MSE), Signal to Noise Ratio (SNR), Peak Signal to Noise Ratio (PSNR), Correlation Coefficient (Coc), Despeckling