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Review of Ultrasound Image Processing Techniques for Speckle Noise Reduction

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Abstract : Medical ultrasound imaging is a crucial diagnostic technique due to its affordability and non-invasiveness compared to other imaging methods. However, the presence of speckle noise, which is a form of multiplicative noise, poses a significant obstacle to obtaining clear and accurate images in ultrasound imaging. Speckle noise reduces image quality by decreasing contrast, resolution, and signal-to-noise ratio (SNR). This makes it difficult for medical professionals to interpret ultrasound images accurately. To address this issue, various techniques have been developed to reduce speckle noise in ultrasound images, which improves image quality. This paper aims to review some of these techniques, highlighting the advantages and disadvantages of each algorithm and identifying the scenarios in which they work most effectively.

Keywords : image processing, noise, speckle, ultrasound
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