Speckle Noise Reduction Using Anisotropic Filter Based on Wavelets

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Abstract : In this paper, the approach of denoising is solved by using a new hybrid technique which associates the different denoising methods. Wavelet thresholding and anisotropic diffusion filter are the two different filters in our hybrid techniques. The Wavelet thresholding removes the noise by removing the high frequency components with lesser edge preservation, whereas an anisotropic diffusion filters is based on partial differential equation, (PDE) to remove the speckle noise. This PDE approach is used to preserve the edges and provides better smoothing. So our new method proposes a combination of these two filtering methods which performs better results in terms of peak signal to noise ratio (PSNR), coefficient of correlation (COC) and equivalent no of looks (ENL).
Keywords : denoising, anisotropic diffusion filter, multiplicative noise, speckle, wavelets
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