Two Stage Wavelet based Image Denoising

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Abstract

In this paper we are proposing a 2-stage wavelet based denoising technique. First stage of denoising is performed on the approximation coefficient obtained from the level 1 wavelet decomposition [1] of the noisy image and second stage of denoising is applied on the reconstructed image. The second stage denoising has shown a better result on to the reconstructed image. The detail coefficients are newly estimated from the first level denoised approximation coefficients. For denoising, techniques like Total Variation [3], Split Bregman [4] and NL means [5] are used. The quality of results obtained from different denoising techniques has been measured using various objective matrices such as PSNR, MSE on standard test
images.

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Index Terms

Computer Science

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Keywords

Total Variation Split-Bregman NL-means Edge detection