Abstract

This paper investigates different models developed through hybridization of wavelet and bilateral filters for denoising of variety of noisy images. Hybridization between wavelet thresholding and bilateral filter is done in different configurations. The models are experimented on standard images like Lena, Barbara, Einstein and satellite as well as astronomical telescopic images and their performances are evaluated in terms of peak signal to noise ratio (PSNR) and image quality index (IQI). Out of number of trial models developed, only 25 models are reported as the performance of the rest models are too poor to be reported. Results demonstrate that use of bilateral filters in combination with wavelet thresholding filters in different ways on decomposed subbands deteriorates the performance. But the application of bilateral filter before or after or both before and after decomposition enhances the performance. Specifically, the filter developed with bilateral filter before decomposition of an image is found to give uniform and consistent results on all the images.


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**Index Terms**

Computer Science                     Signal Processing

**Keywords**

Image denoising  wavelet transform  wavelet thresholding  bilateral filter