Abstract

A Decision based scheme using a improved mesh based snake like sorting is proposed for the restoration of gray scale images that are heavily corrupted by salt and pepper noise. The proposed algorithm uses modified mean or median for image restoration. The processed pixel is examined for 0 or 255; if checked pixel is equal to 0 or 255, then it is considered as noisy pixel else not noisy. The noisy pixel is replaced by median of unsymmetrical trimmed output, if the current window has at least three noisy pixels or mean of first and last values of the un-symmetrical trimmed output. The uncorrupted pixel is left unchanged. The proposed algorithm shows excellent noise suppression capability with good edge preservation in heavy noisy conditions both qualitative and quantitatively. The proposed algorithm was applied on various grayscale images and found to have excellent PSNR and high IEF , low MSE and consumes less time even at very high noise densities with edge preservation.

References

- J. Astola and P. Kuosmaneen, Fundamentals of non linear Digital Filtering. Boca
A Decision based Unsymmetrical Trimmed Variants for the Removal of High Density Salt and Pepper Noise


**Index Terms**

Computer Science  
Signal Processing

**Keywords**

Decision Based Filter  
Unsymmetrical Trimmed Mean Filter  
Salt And Pepper Noise