Denoising of Digital Images using Consolidation of Edges and Separable Wavelet Transform

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Abstract

Denoising is still a challenging area of research due to its commercial and technical applications. We present a novel approach to image denoising using edge profile detection and edge preservation in spatial domain in presence of zero mean additive Gaussian noise. A Noisy image is initially preprocessed using the proposed local edge profile detection and subsequent edge preserving filtering in spatial domain followed further by the modified threshold bivariate shrinkage algorithm. The proposed technique does not require any estimate of standard deviation of noise (σ) present in the image. Performance of the proposed algorithm is presented in terms of PSNR and SSIM on a variety of test images containing a wide range of σ starting from 15 to 100. The performance of the proposed algorithm is better than NL means and Bivariate Shrinkage while it’s comparable with BM3D.

References

1. L. Shao, R. Yan, X. Li, and Y. Liu, “From heuristic optimization to dictionary learning: A


Index Terms
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**Keywords**

DWT, Local profile edge detection, Bivariate Shrinkage