Abstract

Several noise removal techniques have proven their worth in image processing applications. After an overview of some image denoising approaches, we introduce a LMMSE-based denoising technique with wavelet multiscale model and wiener filter in spatial domain. This proposed denoising technique stands out prominent in terms of SNR, MSE and PSNR compared to some more denoising techniques (also proposed in this paper). The Overcomplete Wavelet Expansion (OWE) which is also employed, provides better result compared to Orthogonal Wavelet Transform (OWT). Moreover, some fine details of the image such as edges, curves etc. is preserved using the LMMSE rule.

References

- I. Pitas and A. N. Venetsanopoulos, "Nonlinear Digital Filters: Principles and
A New Approach to Image Denoising based on Wiener-LMMSE Scheme


Index Terms

Computer Science  Signal Processing

Keywords

Denoising  Discrete Wavelet Transform (dwt)  Wiener Filter  Overcomplete Wavelet Expansion (owe)
Lmmse  Multiscale
Square Error (mse)  Mean
And Peak Signal To Noise Ratio (psnr)