Abstract

This paper proposes an adaptive window median filter (AWMDF) for Gaussian noise reduction. This is a spatial method where an n x n filtering window is applied around each noisy pixel. However, to make this possible for the boundary pixels, the image has to be padded on all sides by some padding method. The symmetrical padding method has been adopted here. Odd sized window is preferred as it provides better results for median estimation. Depending upon
the noise levels, the method chooses desired window sizes. For low noise levels, the 3x3 filtering window is preferred, for medium noise levels, the 5x5 filtering window is preferred while for high noise levels, the 7x7 filtering window is preferred. Higher sized windows viz. 9x9, 11x11, etc. do not provide any advantage at any noise levels. The advantage of this filter is its simplicity and ease of application and provides reasonable qualitative and quantitative results.

References


Index Terms

Computer Science  Signal Processing

Keywords

Gaussian Noise  Median Filter  Spatial Method