

CEST02_144

Image Denoising Using Adapted Median Filter Technique

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ABSTRACT

Adopted filtering approach is proposed to restore images corrupted by an impulse noise. The proposed algorithm eliminates salt & pepper noise from corrupted gray scale image while preserving its details. The former phase of this research is executed by computing the average difference between the current central pixel and its neighborhood pixels in current mask. In the following stage, Pixel values in current mask are sorted using the standard median filter approach. Findings obtained from phase one is then compared with central pixel acquired from phase two. Central pixel of phase two is replaced by the measurement taken from phase one if the comparison is greater than certain amount. The amount was carefully chosen based on the average gray level of each particular selected standard image. Simulation results indicate that proposed filtering technique is better able to preserve 2-D edge structures of the image. Least mean square error (MSE) is used to evaluate the proposed approach. Findings Also reveals that the proposed method delivers better performance with less computational complexity as compared to other denoising algorithms existing in literature.

Keywords: Image denoising, Impulse noise, Adapted Median Filter, MSE