Abstract

Several researchers are concentrated on cancellation of salt and pepper noise from the two-dimensional signals like digital images and uses several filters like mean filter, median filter, trimmed median filter etc., for removal of noise. A novel approach has been implemented using a filter so called Additive White Median Filter (AWMF) for filtering the two-dimensional signal which uses a schematic procedure where mean value of the particular window size is used instead of median value for the removal of high density noise from the signals without changing the clarity of the digital image. In this scheme noisy pixels are replaced with the neighborhood non noisy pixels mean value. Whenever the window selected dynamically is non-flexible with the corrupted pixels, then the size of the window is increased in order to flexible with pixels. The selection of window size depends on the noise density in the image and also corrupted pixel density in the window. Hence a variable window size is chosen for the removal of noise in the pixels. The novel scheme is subjected to various aspects of the two-dimensional signal and also for different noise levels in order to evaluate the performance. Comparative studies proves that the novel scheme removes the salt and pepper noise effectively with better image quality compared with conventional methods and recently proposed methods such mean filter, modified decision based un-symmetric trimmed median filter, median filter and adaptive median filter. The simulation results shown in the below sections and from
which it is clear that the newly defined novel approach has removed salt and pepper noise
better than all the conventional methods for variable noise levels and also it removes noise
without losing the edge information.

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Index Terms

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