

Digital Signal Processing

Project Title : Reduction of Impulse Noise in MRI Images Using Block Based Adaptive Median Filtering

Overview : Images often gets degraded during transmission or some kind of processing. Noise gets added to the image. In some medical images , like MRI images some corners and lines contain really important physiological information which can get corrupted by noise. So, we need to remove the noise. For this kind of noise median filter is generally good. However, the performance of standard median filter greatly depends on the size of the filtering window taken to a great extent. For example, when window size is decreased, it maintains the details better while reducing less noise.

For solving this problem, we propose a block based adaptive median filter which reduces more noise while keeping the details intact. The main idea of adaptive median filter is to adjust the size of filtering window according to the noise distribution inside the filtering window to achieve better results for noise reduction and detail protection. With block based adaptive median filter, noise point is determined according to the average value of the filtering window and the standard deviation of the sub-image .

Objectives :

1. Implementing and applying block based adaptive median filtering to MRI images.
2. Comparing the results with the standard median filter .

References :

1. <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6864519>

Group Members :

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