Abstract

Digital image is very vulnerable to get the noise attack. Noise that can occur in an image can be classified into six models. One of them is the Impulse Noise. This noise is caused by the occurrence of bit errors in data transmission. Noise is a major source of error in digital data communication, and reducing noise in digital images is very important before the image get into some further processing, such as edge detection, image segmentation, and object recognition.

The algorithm used in reducing this Impulse Noise is, Sized based Adaptive Median Filter (SAMF). SAMF is based on the detection of the size of the impulse noise. SAMF algorithm consists of two operations performed, which doing three stage impulse noise detection and followed by filtering. Window mask size on filtering process used is: 3 x 3, 5 x 5, and 7 x 7. The size of the window mask depend on the stage that entered during the detection process with a certain threshold. The tested image is processed RGB per channel in sequence, then the output is in the form of PSNR and PONA, and image filtering results.

Based on test results, it can be concluded that in order to get the best performance of the algorithm SAMF, we need to provide value to each of the appropriate threshold is adjusted to the type of image. SAMF quite feasible for use in impulse noise which ranges from 0 to 0.3.

Keywords: *impulse noise, size based adaptive median filter, RGB channel, threshold, PSNR, PONA*