Homework #4

Due. 5/18/2020 (Monday at Midnight)

(Goal of Project)

Understanding the concept of FIR linear noise filter and non-linear noise filters.

(Tools)

1. Given an original and its noised images. (Some of them are as follows.)


(Original)


(with 30%Gaussian noise)


(with 30% Salt&Pepper noise)

2. Hamming window for window method.
3. 5 by 5 median filter window (Calculate the median value among 25 values, and set the middle pixel value with the median.)

(Description of Project)

1) To get the enhanced images, apply 5*5 median filter to reduce the noise.
2) Design the 5 by 5 FIR filter which is separable and zero-phased.
   (Set the desired cut-off frequency as $\frac{\pi}{2}$[rad/sec]), using the window method (Hamming window.)
3) Apply the above filter to the noised images.
4) Discuss the results from 1), 3).