

# Computer Vision 2019 Fall

## Homework #8

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### Description

This homework focuses on generating noisy images and removing noise from images.

### Results

#### Gaussian noise image with amplitude 10



noisy image  
SNR = 13.938



3x3 box filter  
SNR = 17.828



5x5 box filter  
SNR = 14.869



3x3 median filter  
SNR = 17.907



5x5 median filter

SNR = 16.074

open then close

SNR = 8.572

close then open

SNR = 7.652

### Gaussian noise image with amplitude 30



noisy image

SNR = 4.290



3x3 box filter

SNR = 12.688

5x5 box filter

SNR = 13.349

3x3 median filter

SNR = 11.314



5x5 median filter

SNR = 13.077

open then close

SNR = 8.588

close then open

SNR = 6.065

## Salt-and-pepper noise image with probability 0.1



noisy image  
SNR = -2.106



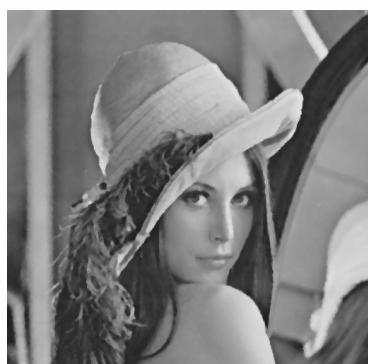
3x3 box filter  
SNR = 6.342



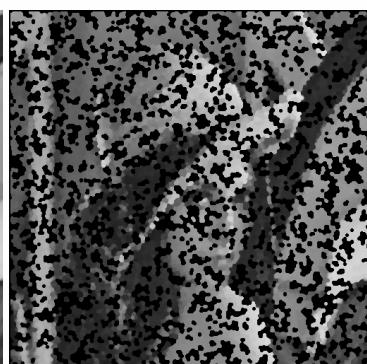
5x5 box filter  
SNR = 8.523



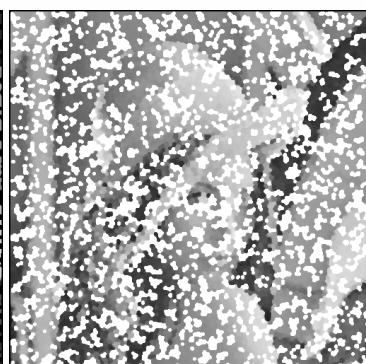
3x3 median filter  
SNR = 14.913



5x5 median filter  
SNR = 15.785



open then close  
SNR = -2.300



close then open  
SNR = -2.937

## Salt-and-pepper noise image with probability 0.05



noisy image

SNR = 0.991



3x3 box filter

SNR = 9.501



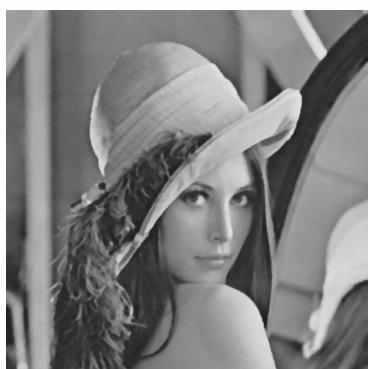
5x5 box filter

SNR = 11.194



3x3 median filter

SNR = 19.266



5x5 median filter

SNR = 16.358



open then close

SNR = 4.451



close then open

SNR = 4.014