

Homework 8

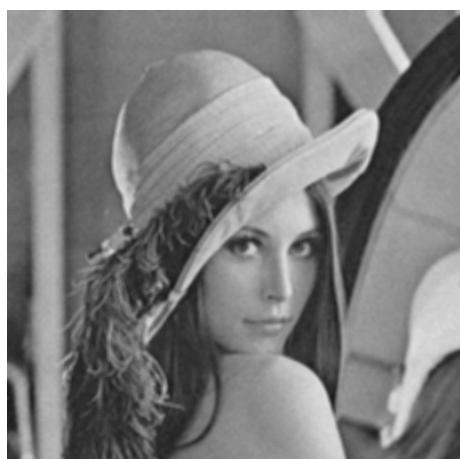
1. Gaussian noise, amplitude = 10



Gaussian noise, amplitude = 10, SNR = 13.602



Box_3x3, SNR = 17.759



Box_5x5, SNR = 14.867



Median_3x3, SNR = 17.682



Median_5x5, SNR = 16.009



Opening-then-closing, SNR = 13.218



Closing-then-opening, SNR = 13.587

2. Gaussian noise, amplitude = 30



Gaussian noise, amplitude = 30, SNR = 2.817



Box_3x3, SNR = 10.782



Box_5x5, SNR = 11.756



Median_3x3, SNR = 10.874



Median_5x5, SNR = 16.009



Opening-then-closing, SNR = 11.047



Closing-then-opening, SNR = 7.722

3. Salt and Pepper noise, threshold = 0.05



Salt and Pepper noise, threshold = 0.05, SNR = 0.896



Box_3x3, SNR = 9.388



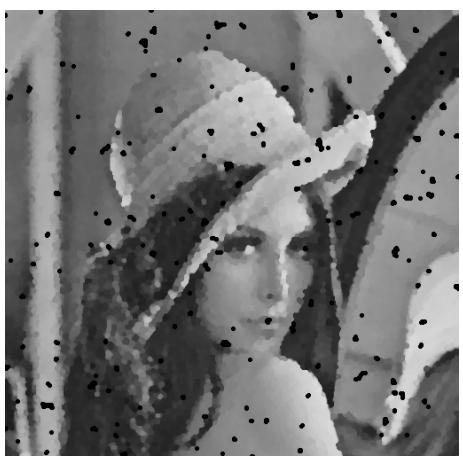
Box_5x5, SNR = 11.071



Median_3x3, SNR = 19.157



Median_5x5, SNR = 16.319



Opening-then-closing, SNR = 5.675



Closing-then-opening, SNR = 5.138

4. Salt and Pepper noise, threshold = 0.10



Salt and Pepper noise, threshold = 0.10, SNR = -2.086



Box_3x3, SNR = 6.387



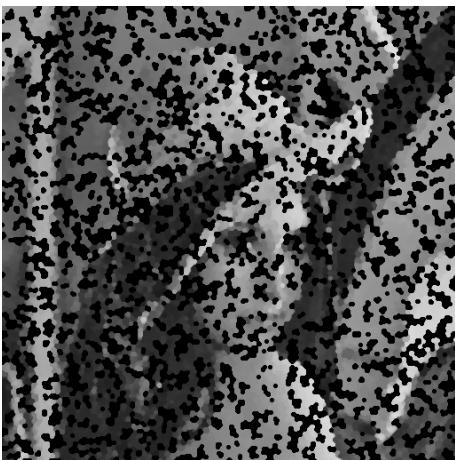
Box_5x5, SNR = 8.580



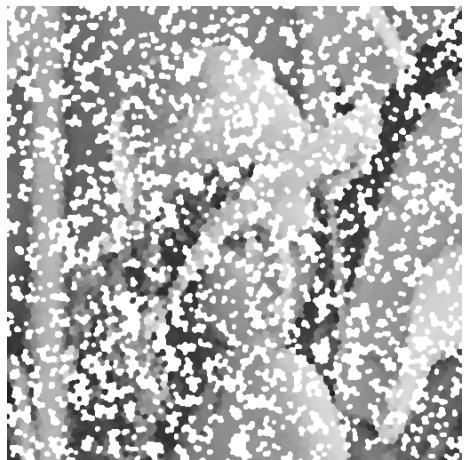
Median_3x3, SNR = 15.038



Median_5x5, SNR = 15.658



Opening-then-closing, SNR = -2.125



Closing-then-opening, SNR = -2.600

SNR Output:

```
[(base) pattyde-MBP:R09922063_HW8_ver1 patty$ python3 CVHw8.py
gaussian Noise 10  SNR =  13.602193800183526
gaussian Noise 30  SNR =  2.817537808168951
salt And Pepper 0.05  SNR =  0.8963866007827732
salt And Pepper 0.1  SNR =  -2.0868227370957033
box Filter 3 x 3  SNR =  17.759101377031552
box Filter 3 x 3  SNR =  10.782626167377348
box Filter 3 x 3  SNR =  9.388323230506732
box Filter 3 x 3  SNR =  6.387813421339731
box Filter 5 x 5  SNR =  14.867873613893913
box Filter 5 x 5  SNR =  11.756470169606505
box Filter 5 x 5  SNR =  11.071810706708723
box Filter 5 x 5  SNR =  8.580876167855116
median Filter 3 x 3  SNR =  17.68238789762774
median Filter 3 x 3  SNR =  10.874171432783905
median Filter 3 x 3  SNR =  19.15717710081531
median Filter 3 x 3  SNR =  15.038858212743282
median Filter 5 x 5  SNR =  16.0096807934123
median Filter 5 x 5  SNR =  12.599038831036316
median Filter 5 x 5  SNR =  16.31952536489134
median Filter 5 x 5  SNR =  15.658911497593751
```