# HW8 report

R10922082 林育駿

本次作業中使用 python opencv 幫助圖片的 I/O 一些處理部分，執行 R10922082_HW8.py 會生成 28 張圖片，其中四張為加上 noise 後的 lena，其餘 24 張為 6 種不同方法(kernel 大小)對應 4 張 noise 圖做去雜訊後產生的圖片，格式採用和範例相同，圖片檔名為"lena_{filter}_{noise model}.bmp"。

1. Gaussian noise, amplitude=10



Gaussian noise, amplitude=10, SNR = 13.596



Box_3x3, SNR = 17.730



Box_5x5, SNR = 15.982



Median_3x3, SNR = 17.634



Median_5x5, SNR = 15.982

| | |
|---|---|
| Opening-then-closing, SNR = 13.239 | Closing-then-opening, SNR = 13.565 |

2. Gaussian noise, amplitude=30



Gaussian noise, amplitude=30, SNR = 2.811



| | |
|---|---|
| Box_3x3, SNR = 10.804 | Box_5x5, SNR = 11.753 |

Median_3x3, SNR = 10.874


Median_5x5, SNR = 12.638


Opening-then-closing, SNR = 11.076


Closing-then-opening, SNR = 8.033

3. Salt-and-pepper noise, probability=0.1


Salt-and-pepper noise, probability=0.1, SNR = -2.136
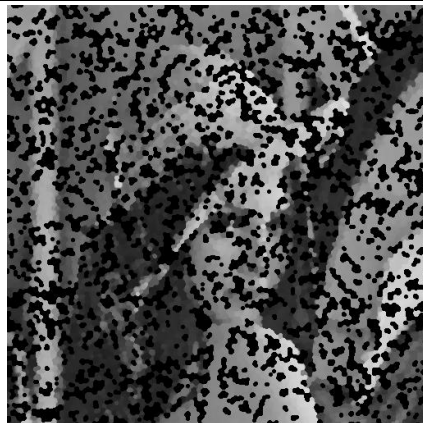
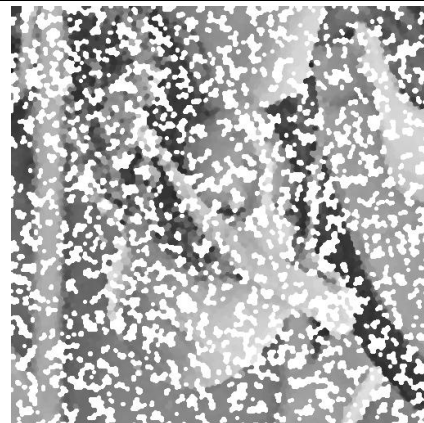Box_3x3, SNR = 6.233


Box_5x5, SNR = 8.387


Median_3x3, SNR = 14.746


Median_5x5, SNR = 15.649


Opening-then-closing, SNR = -2.217


Closing-then-opening, SNR = -2.559

4. Salt-and-pepper noise, probability=0.05

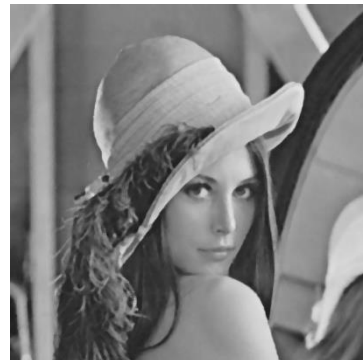Salt-and-pepper noise, probability=0.05, SNR = 0.878
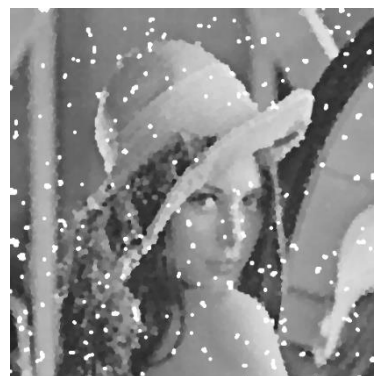

Box_3x3, SNR = 9.414


Box_5x5, SNR = 11.118


Median_3x3, SNR = 19.077


Median_5x5, SNR = 16.411


Opening-then-closing, SNR = 5.479


Closing-then-opening, SNR = 4.883