HW8 report

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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

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| Gaussian noise, amplitude=10, SNR = 13.596 | |
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| Box\_3x3, SNR = 17.730 | Box\_5x5, SNR = 15.982 |
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| Median\_3x3, SNR = 17.634 | Median\_5x5, SNR = 15.982 |

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

1. Gaussian noise, amplitude=30

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| Gaussian noise, amplitude=30, SNR = 2.811 | |
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| Box\_3x3, SNR = 10.804 | Box\_5x5, SNR = 11.753 |
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| Median\_3x3, SNR = 10.874 | Median\_5x5, SNR = 12.638 |

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| Opening-then-closing, SNR = 11.076 | Closing-then-opening, SNR = 8.033 |

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

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| Salt-and-pepper noise, probability=0.1, SNR = -2.136 | |
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| Box\_3x3, SNR = 6.233 | Box\_5x5, SNR = 8.387 |
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| Median\_3x3, SNR = 14.746 | Median\_5x5, SNR = 15.649 |

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| Opening-then-closing, SNR = -2.217 | Closing-then-opening, SNR = -2.559 |

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

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| Salt-and-pepper noise, probability=0.05, SNR = 0.878 | |
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| Box\_3x3, SNR = 9.414 | Box\_5x5, SNR = 11.118 |
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| Median\_3x3, SNR = 19.077 | Median\_5x5, SNR = 16.411 |
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| Opening-then-closing, SNR = 5.479 | Closing-then-opening, SNR = 4.883 |