

電腦視覺 HW8 report

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報告需知:

1. 使用官網所推薦的格式撰寫報告, 故呈現方式非按照題目的順序。
 2. Padding 方式為上課所授的方式, 即邊緣往外擴充。
 3. SNR 函式按照官網將圖片由 $[0, 255] \in \mathbb{N}$ 轉到 $[0, 1] \in \mathbb{R}$ 區間, 且已驗證 lena.png 與 median_5x5.png 之 SNR 在 15.67369 附近。
甲、表格內的 SNR 是經過小數後第三位四捨誤入後的結果。
乙、SNR 之所有輸出, 整理在本報告最末頁。
 4. 圖片請以附檔為準。
1. Gaussian, amplitude = 10



Gaussian, amplitude = 10, SNR = 13.597



Box_3x3, SNR = 17.759



Box_5x5, SNR = 14.865



Median_3x3, SNR = 17.692



Median_5x5, SNR = 15.992



Opening-then-Closing, SNR = 13.242



Closing-then-Opening, SNR = 13.619

2. Gaussian, amplitude = 30



Gaussian, amplitude = 30, SNR = 4.121



Box_3x3, SNR = 12.573



Box_5x5, SNR = 13.300



Median_3x3, SNR = 11.102



Median_5x5, SNR = 12.905



Opening-then-Closing, SNR = 11.194



Closing-then-Opening, SNR = 11.154

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



Salt-and-pepper noise, probability=0.05, SNR = 0.879



Box_3x3, SNR = 9.425



Box_5x5, SNR = 11.152



Median_3x3, SNR = 19.202



Median_5x5, SNR = 16.422



Opening-then-Closing, SNR = 6.056



Closing-then-Opening, SNR = 5.099

4. Salt-and-pepper noise, probability=0.10 (與官網的參考資料非常接近)





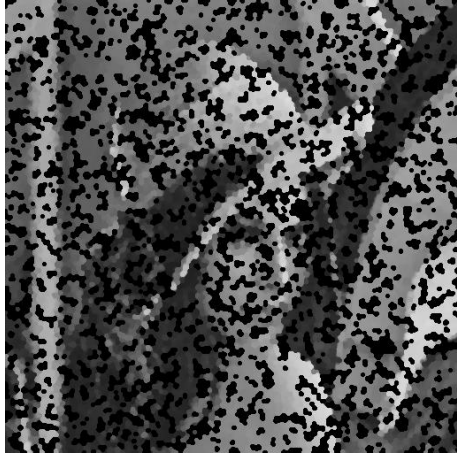

Salt-and-pepper noise, probability=0.10, SNR = -2.072



Box_3x3, SNR = 6.373



Box_5x5, SNR = 8.565

	
Median_3x3, SNR = 14.974	Median_5x5, SNR = 15.723
	
Opening-then-Closing, SNR = -2.093	Closing-then-Opening, SNR = -2.601

5. SNR 總整理:

[SNR - gaussian10]: 13.596911142297891
 [SNR - gaussian30]: 4.120723122912438
 [SNR - saltAndPepperDot05]: 0.8788015787218045
 [SNR - saltAndPepperDot10]: -2.0718674008826445
 [SNR - boxFilterGaussian10_3]: 17.75869856004193
 [SNR - boxFilterGaussian10_5]: 14.86468681609429
 [SNR - boxFilterGaussian30_3]: 12.572848815963802
 [SNR - boxFilterGaussian30_5]: 13.300425531333833
 [SNR - boxFilterSPDot05_3]: 9.425001235167041
 [SNR - boxFilterSPDot05_5]: 11.151835014158921
 [SNR - boxFilterSPDot10_3]: 6.372709340479627
 [SNR - boxFilterSPDot10_5]: 8.564808410626295
 [SNR - medianFilterGaussian10_3]: 17.692176190573885
 [SNR - medianFilterGaussian10_5]: 15.991928538056122

[SNR - medianFilterGaussian30_3]: 11.10200536808634
[SNR - medianFilterGaussian30_5]: 12.905239762762086
[SNR - medianFilterSPDot05_3]: 19.202317635955527
[SNR - medianFilterSPDot05_5]: 16.421973940047263
[SNR - medianFilterSPDot10_3]: 14.974223786385233
[SNR - medianFilterSPDot10_5]: 15.723273871101712
[SNR - Opening_Closing_gaussian10]: 13.242257828721872
[SNR - Closing_Opening_gaussian10]: 13.61885989672019
[SNR - Opening_Closing_gaussian30]: 11.194715996864637
[SNR - Closing_Opening_gaussian30]: 11.154338011626448
[SNR - Opening_Closing_SPDot05]: 6.056387764879472
[SNR - Closing_Opening_SPDot05]: 5.099119310970144
[SNR - Opening_Closing_SPDot10]: -2.093
[SNR - Closing_Opening_SPDot10]: -2.601