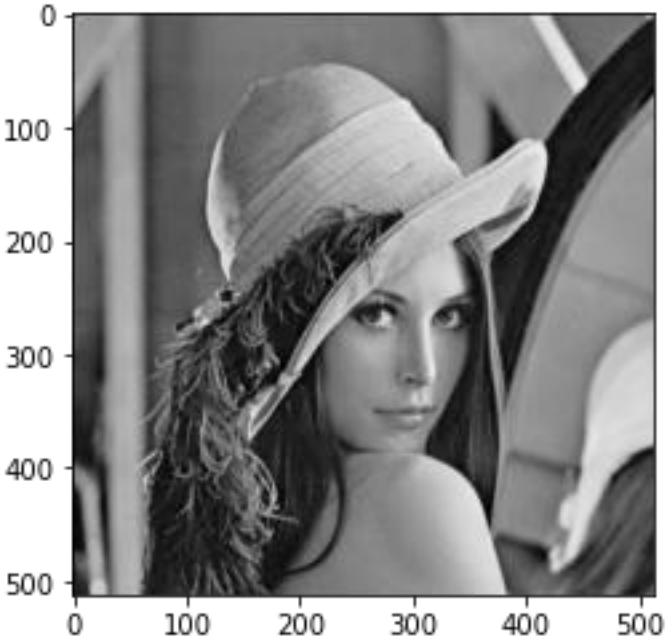
電腦視覺 hw10 資工所碩一 R09922127 林聖哲

Python 版本 3.6.12
使用套件 cv2, numpy, matplotlib
對原圖每個 pixel 算出卷積, 求出 p1 p2, 算出 gradient magnitude >= threshold 設為 0
Original Image:

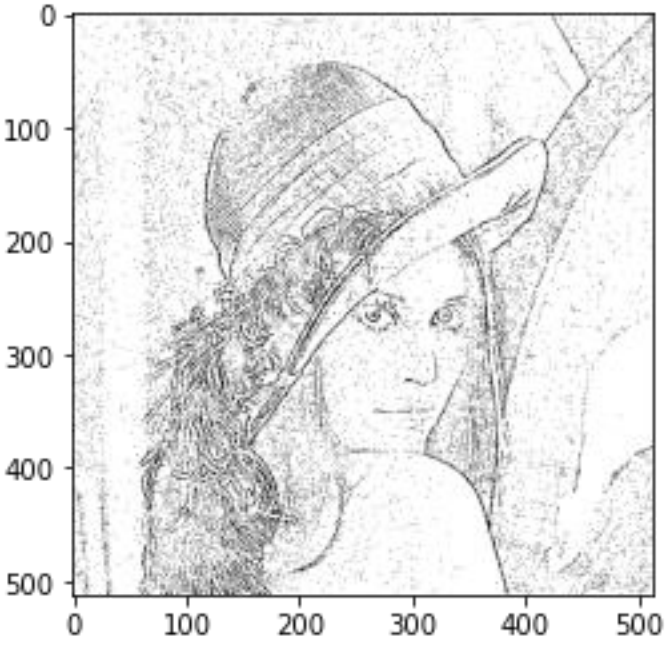


(a) Laplace Mask1 (0, 1, 0, 1, -4, 1, 0, 1, 0): 15

(threshold = 15)

	1	
1	-4	1
	1	

對原圖每個 pixel 算出卷積, 求出 gradient magnitude >= threshold 設為 0



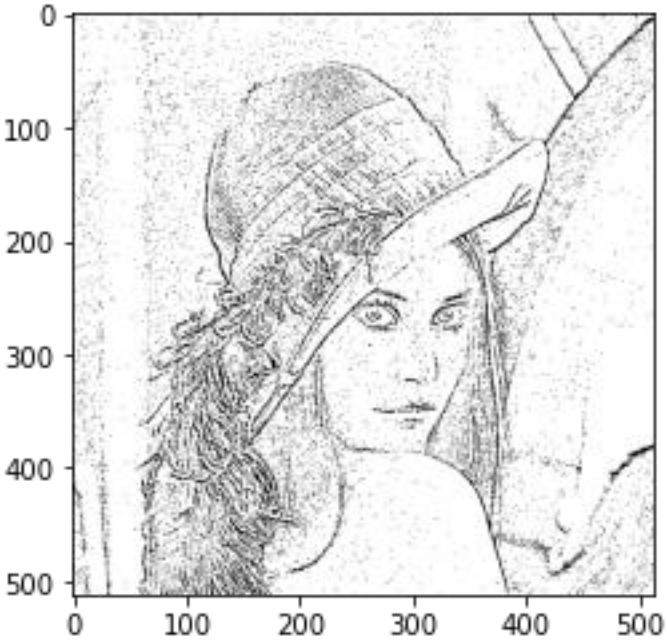
(b) Laplace Mask2 (1, 1, 1, 1, -8, 1, 1, 1, 1)

(threshold = 15)

$\frac{1}{3}$

1	1	1
1	-8	1
1	1	1

對原圖每個 pixel 算出卷積除以 3，求出 gradient magnitude >= threshold 設為 0



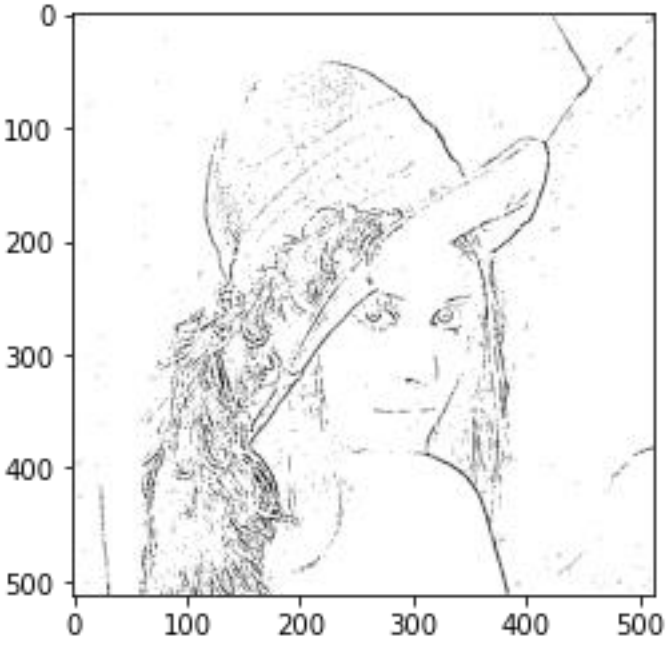
(c) Minimum variance Laplacian: 20

(threshold = 20)

$\frac{1}{3}$

2	-1	2
-1	-4	-1
2	-1	2

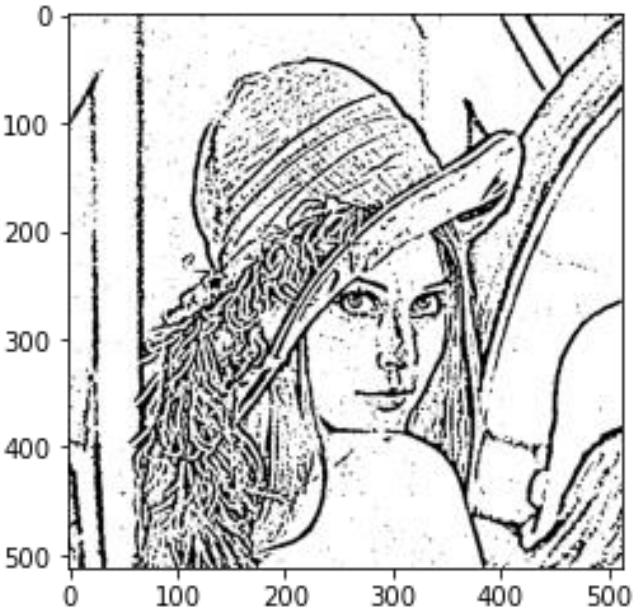
對原圖每個 pixel 算出卷積除以 3，求出 gradient magnitude >= threshold 設為 0



(d) Laplace of Gaussian: 3000

0	0	0	-1	-1	-2	-1	-1	0	0	0
0	0	-2	-4	-8	-9	-8	-4	-2	0	0
0	-2	-7	-15	-22	-23	-22	-15	-7	-2	0
-1	-4	-15	-24	-14	-1	-14	-24	-15	-4	-1
-1	-8	-22	-14	52	103	52	-14	-22	-8	-1
-2	-9	-23	-1	103	178	103	-1	-23	-9	-2
-1	-8	-22	-14	52	103	52	-14	-22	-8	-1
-1	-4	-15	-24	-14	-1	-14	-24	-15	-4	-1
0	-2	-7	-15	-22	-23	-22	-15	-7	-2	0
0	0	-2	-4	-8	-9	-8	-4	-2	0	0
0	0	0	-1	-1	-2	-1	-1	0	0	0

對原圖每個 pixel 算出卷積，求出 gradient magnitude >= threshold 設為 0



(e) Difference of Gaussian: 1

-1	-3	-4	-6	-7	-8	-7	-6	-4	-3	-1
-3	-5	-8	-11	-13	-13	-13	-11	-8	-5	-3
-4	-8	-12	-16	-17	-17	-17	-16	-12	-8	-4
-6	-11	-16	-16	0	15	0	-16	-16	-11	-6
-7	-13	-17	0	85	160	85	0	-17	-13	-7
-8	-13	-17	15	160	283	160	15	-17	-13	-8
-7	-13	-17	0	85	160	85	0	-17	-13	-7
-6	-11	-16	-16	0	15	0	-16	-16	-11	-6
-4	-8	-12	-16	-17	-17	-17	-16	-12	-8	-4
-3	-5	-8	-11	-13	-13	-13	-11	-8	-5	-3
-1	-3	-4	-6	-7	-8	-7	-6	-4	-3	-1

對原圖每個 pixel 算出卷積，求出 gradient magnitude >= threshold 設為 0

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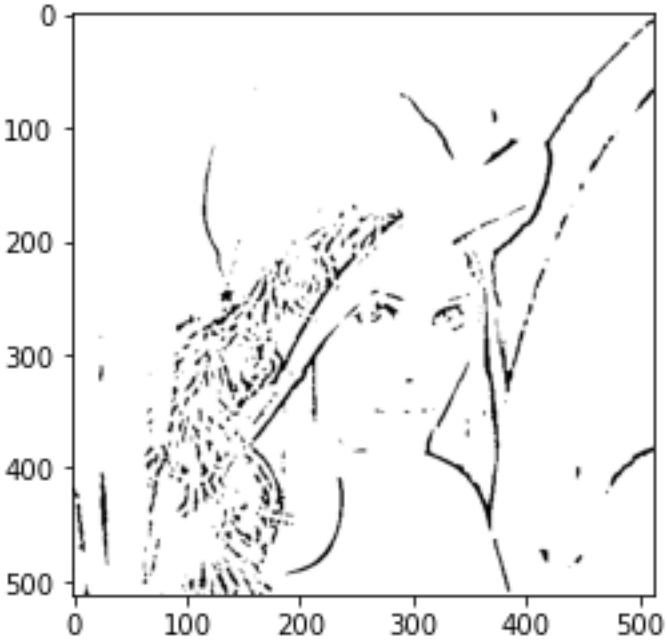
0
100
200
300
400
500
0
100
200
300
400
500