

# 電腦視覺 HW10

Laplacian with Threshold (0, 1, 0, 1, -4, 1, 0, 1, 0):15



kernel=[[0,1,0],  
[1,-4,1],  
[0,1,0]]

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Laplacian with threshold (1, 1, 1, 1, -8, 1, 1, 1, 1):15



kernel=[[1/3,1/3,1/3],  
[1/3,-8/3,1/3],  
[1/3,1/3,1/3]]

Minimum\_variance\_Laplacian with Threshold:20



kernel= $\begin{bmatrix} 2/3 & -1/3 & 2/3 \\ -1/3 & -4/3 & -1/3 \\ 2/3 & -1/3 & 2/3 \end{bmatrix}$

Laplacian\_of\_Gaussian with threshold:3000



kernel= $\begin{bmatrix} 0 & 0 & 0 & -1 & -1 & -2 & -1 & -1 & 0 & 0 & 0 \\ 0 & 0 & -2 & -4 & -8 & -9 & -8 & -4 & -2 & 0 & 0 \\ 0 & -2 & -7 & -15 & -22 & -23 & -22 & -15 & -7 & -2 & 0 \\ -1 & -4 & -15 & -24 & -14 & -1 & -14 & -24 & -15 & -4 & -1 \\ -1 & -8 & -22 & -14 & 52 & 103 & 52 & -14 & -22 & -8 & -1 \\ -2 & -9 & -23 & -1 & 103 & 178 & 103 & -1 & -23 & -9 & -2 \\ -1 & -8 & -22 & -14 & 52 & 103 & 52 & -14 & -22 & -8 & -1 \\ -1 & -4 & -15 & -24 & -14 & -1 & -14 & -24 & -15 & -4 & -1 \\ 0 & -2 & -7 & -15 & -22 & -23 & -22 & -15 & -7 & -2 & 0 \\ 0 & 0 & -2 & -4 & -8 & -9 & -8 & -4 & -2 & 0 & 0 \\ 0 & 0 & 0 & -1 & -1 & -2 & -1 & -1 & 0 & 0 & 0 \end{bmatrix}$

Laplacian\_of\_Gaussian with Threshold:1



```
kernel=[[-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]]
```