Assignment #3

Computer Vision 2021

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1. Apply **Blur filter** with *"flower.jpg"* and show the image results. (code_blur.py)

No.	Kernel size
1.	5x5
2.	9x9
3.	15x15
4.	25x25

2. Apply **Gaussian filter** with *"flower.jpg"* and show the image results.

No.	Kernel size	Sigma
1.	5x5	1.4
2.	5x5	3.2
3.	7x7	1.4
4.	7x7	3.2

3. Apply **Sharpen** and **Laplacian** to convolution with "butterfly.jpg"

$$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{bmatrix} \qquad kernel = \begin{bmatrix} 0 & 1 & 0 \\ 1 & -4 & 1 \\ 0 & 1 & 0 \end{bmatrix}$$

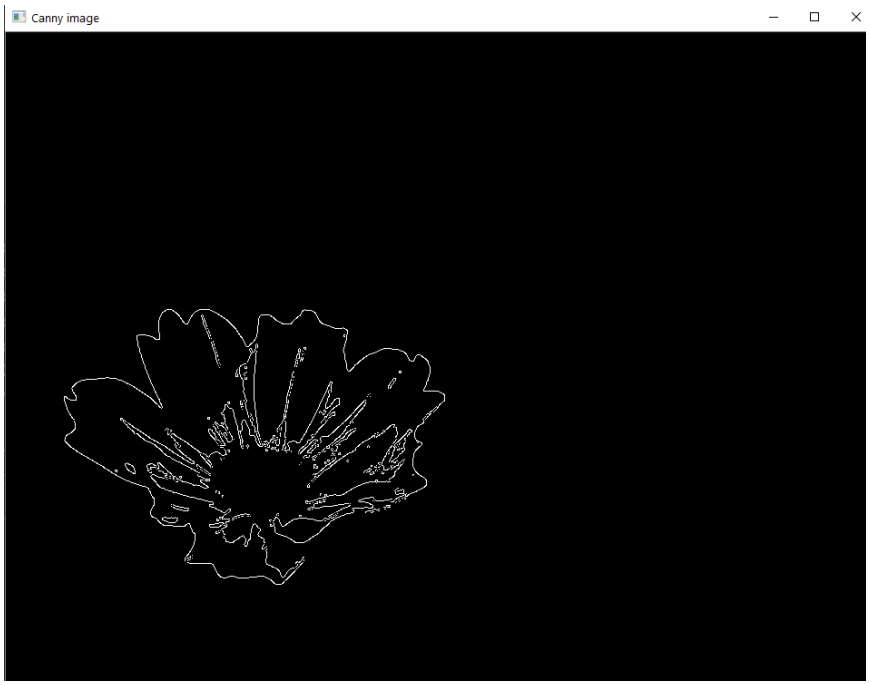
4. Show the comparison results of 3 edge detection (Prewitt, Sobel, and Canny) with "bikesgray.jpg"

5. Show the result of all techniques with “flower.jpg”

Original

Image result (HSV)

Image result (Threshold = 50)



Final image result (canny)

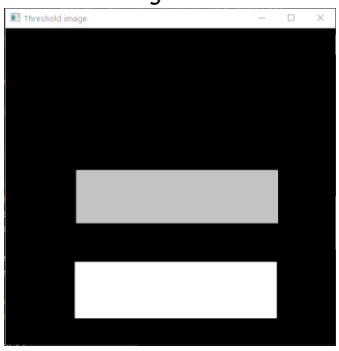
*** Show the parameter of Threshold1, Threshold2

6. Show the result of all techniques with “graylevel.jpg”

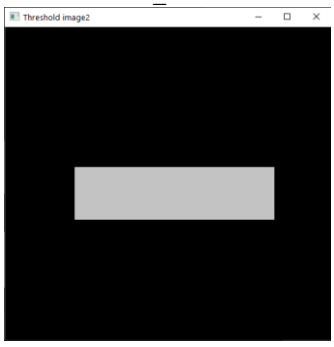
Name parameter	value
ddepth	cv2.CV_64F
Gx	dx =1, dy=0
Gy	dx =0, dy=1

```
resX = cv2.Sobel(img,cv2.CV_64F,1,0)
resY = cv2.Sobel(img,cv2.CV_64F,0,1)
```

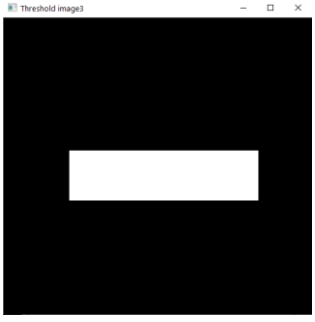
Original



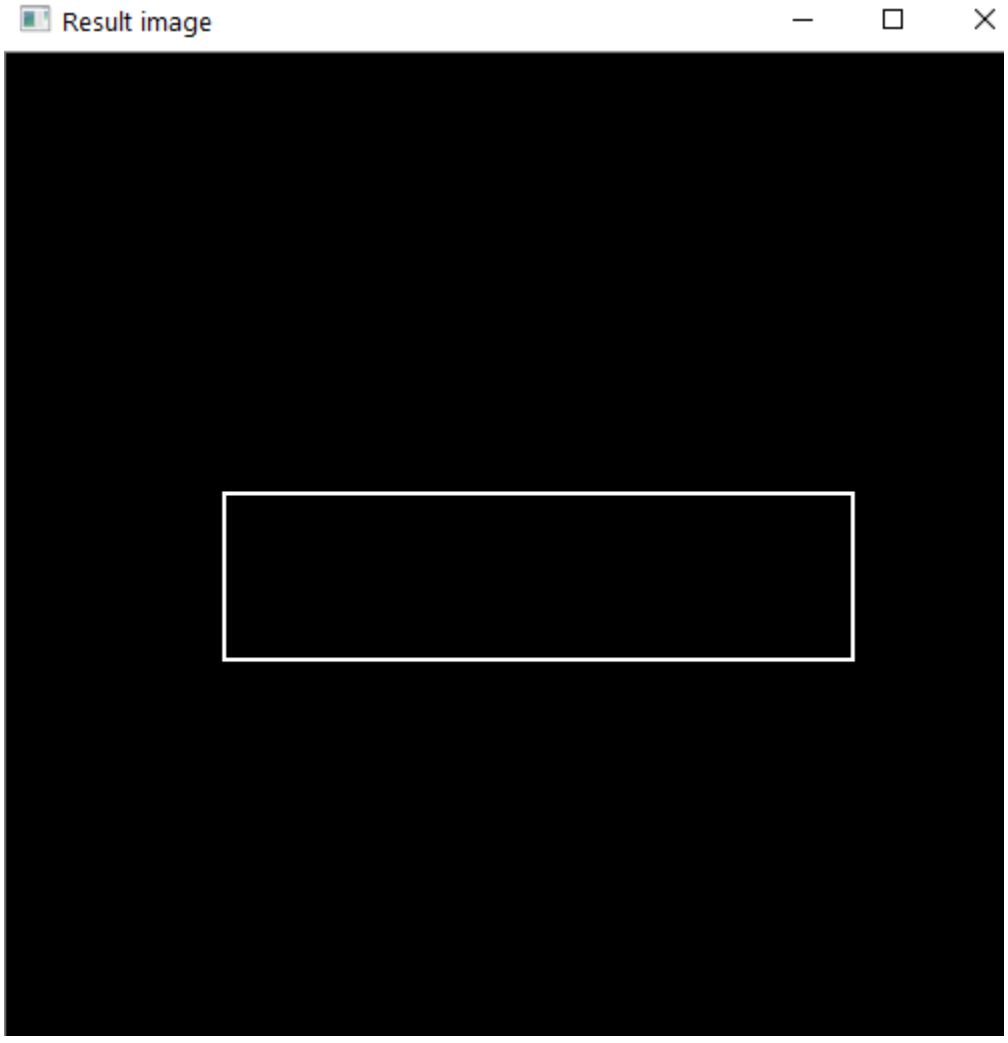
THRESH_TOZERO



THRESH_TOZERO_INV



THRESH_BINARY



Final image result (Sobel 3x3)

*** Show all parameter