import cv2

import matplotlib.pyplot as plt

img=cv2.imread('lion.jpg')

img=cv2.cvtColor(img,cv2.COLOR\_BGR2GRAY)

sobelx=cv2.Sobel(img,cv2.cv\_64f,1,0,10)

sobely=cv2.Sobel(img,cv2.cv\_64f,0,1,10)

sobel\_combined=cv2.magnitute(sobelx,sobely)

plt.figure(figsize=(10,6))

plt.subplot(1,4,1),plt.imshow(img),plt.title('souce image'),plt.axis('off')

plt.subplot(1,4,2),plt.imshow(sobelx,cmap='gray'),plt.title('sobelx'),plt.axis('off')

plt.subplot(1,4,3),plt.imshow(sobely,cmap='gray'),plt.title('sobely'),plt.axis('off')

plt.subplot(1,4,4),plt.imshow(sobel\_combined,cmap='gray'),plt.title('sobel\_combined'),plt.axis('off')

laplacian:

import cv2

import matplotlib.pyplot as plt

img=cv2.imread('lion.jpg')

img=cv2.cvtColor(img,cv2.COLOR\_BGR2GRAY)

gauss=cv2.GaussianBlur(img,(3,3),0)

laplacian=cv2.Laplacian(img,cv2.CV\_64F,ksize=3)

laplacian\_after\_blur=cv2.Laplacian(gauss,cv2.CV\_64F,ksize=3)

plt.figure(figsize=(10,6))

plt.subplot(1,4,1),plt.imshow(img),plt.title('souce image'),plt.axis('off')

plt.subplot(1,4,2),plt.imshow(laplacian,cmap='gray'),plt.title('lap'),plt.axis('off')

plt.subplot(1,4,3),plt.imshow(laplacian\_after\_blur,cmap='gray'),plt.title('lap\_gray'),plt.axis('off')

canny:

import cv2

import matplotlib.pyplot as plt

img=cv2.imread('lion.jpg')

img=cv2.cvtColor(img,cv2.COLOR\_BGR2GRAY)

gauss=cv2.GaussianBlur(img,(3,3),0)

canny=cv2.Canny(img,threshold1=20,threshold2=500)

canny\_after\_blur=cv2.Canny(gauss,threshold1=20,threshold2=150)

plt.figure(figsize=(10,6))

plt.subplot(1,4,1),plt.imshow(img),plt.title('souce image'),plt.axis('off')

plt.subplot(1,4,2),plt.imshow(canny,cmap='gray'),plt.title('canny'),plt.axis('off')

plt.subplot(1,4,3),plt.imshow(canny\_after\_blur,cmap='gray'),plt.title('canny\_after\_blur'),plt.axis('off')