import cv2

import numpy as np

import matplotlib.pyplot as plt

from google.colab import files

from PIL import Image

import io

uploaded = files.upload()

image\_path = next(iter(uploaded))

image = Image.open(io.BytesIO(uploaded[image\_path])).convert('L')

img = np.array(image)

sobel\_y = cv2.Sobel(img, cv2.CV\_64F, dx=0, dy=1, ksize=3)

sobel\_y = np.absolute(sobel\_y)

sobel\_y = np.uint8(np.clip(sobel\_y, 0, 255))

plt.figure(figsize=(10, 4))

plt.subplot(1, 2, 1)

plt.title("Original Grayscale Image")

plt.imshow(img, cmap='gray')

plt.subplot(1, 2, 2)

plt.title("Sobel Edge Detection (Y-axis)")

plt.imshow(sobel\_y, cmap='gray')

plt.show()

