

DSA0210 Computer Vision with Open CV LAB Experiments

Experiment- 13: Perform Edge detection using Sobel Matrix along X axis

PROGRAM:

```
import cv2

import matplotlib.pyplot as plt

import numpy as np

# Read the input image

img = cv2.imread(r"D:\New Folder\input.jpeg")

# Check if image is loaded

if img is None:

    raise FileNotFoundError("Image not found. Check the file path.")

# Convert image to grayscale

gray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)

# Apply Sobel operator along X-axis

sobel_x = cv2.Sobel(gray, cv2.CV_64F, 1, 0, ksize=3)

# Convert to absolute values

sobel_x = np.absolute(sobel_x)

# Convert to uint8 format

sobel_x = np.uint8(sobel_x)

# Display images

plt.figure(figsize=(8, 4))
```

```
plt.subplot(1, 2, 1)
```

```
plt.imshow(gray, cmap="gray")
```

```
plt.title("Grayscale Image")
```

```
plt.axis("off")
```

```
plt.subplot(1, 2, 2)
```

```
plt.imshow(sobel_x, cmap="gray")
```

```
plt.title("Sobel Edge Detection (X-axis)")
```

```
plt.axis("off")
```

```
plt.tight_layout()
```

```
plt.show()
```

OUTPUT:

