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Experiment 16:

Implement a Sobel algorithm using Open CV to filter the input image.

**Code:**

```
import cv2
import numpy as np
image = cv2.imread("Person.jpg")
if image is None:
    print("X Error: Image not found!")
else:
    gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
    blur = cv2.GaussianBlur(gray, (5, 5), 0)
    sobel_x = cv2.Sobel(blur, cv2.CV_64F, 1, 0, ksize=3)
    sobel_y = cv2.Sobel(blur, cv2.CV_64F, 0, 1, ksize=3)
    sobel_x = cv2.convertScaleAbs(sobel_x)
    sobel_y = cv2.convertScaleAbs(sobel_y)
    sobel_combined = cv2.addWeighted(sobel_x, 0.5, sobel_y, 0.5, 0)
    cv2.imshow("Original Image", image)
    cv2.imshow("Sobel X", sobel_x)
    cv2.imshow("Sobel Y", sobel_y)
    cv2.imshow("Sobel Combined", sobel_combined)
    cv2.waitKey(0)
    cv2.destroyAllWindows()
```

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**Output:**

