

```
import cv2
import numpy as np
import matplotlib.pyplot as plt

from google.colab import files
uploaded = files.upload()

filename = next(iter(uploaded))
image = cv2.imread(filename, cv2.IMREAD_GRAYSCALE)

blurred = cv2.GaussianBlur(image, (5, 5), 0)

unsharp_mask = cv2.subtract(image, blurred)

sharpened = cv2.add(image, unsharp_mask)

plt.figure(figsize=(12, 5))
plt.subplot(1, 4, 1)
plt.imshow(image, cmap='gray')
plt.title('Original Image')
plt.axis('off')

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

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

plt.subplot(1, 4, 4)
plt.imshow(sharpened, cmap='gray')
plt.title('Sharpened Image')
plt.axis('off')

plt.tight_layout()
plt.show()
```



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