

# DSA0210 Computer Vision with Open CV LAB Experiments

Experiment- 19: Perform Sharpening of Image using unsharp masking.

## PROGRAM:

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

# 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 Gaussian blur
blurred = cv2.GaussianBlur(gray, (5, 5), 0)

# Create unsharp mask
mask = gray - blurred

# Sharpen the image (k controls strength)
k = 1.5
sharpened = gray + k * mask

# Clip values to valid range
```

```
sharpened = np.clip(sharpened, 0, 255).astype(np.uint8)
```

```
# Display images
```

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

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

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

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

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

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

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

```
plt.title("Sharpened Image (Unsharp Masking)")
```

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

```
plt.tight_layout()
```

```
plt.show()
```

#### OUTPUT:

