

Untitled2

June 3, 2023

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[17]: import cv2
import numpy as np
import matplotlib.pyplot as plt

# Load the image
image = cv2.imread("image_1.png", cv2.IMREAD_GRAYSCALE)

# Define the vertical Sobel filter
sobel_filter = np.array([[ -1,  0,  1],
                          [-2,  0,  2],
                          [-1,  0,  1]])

# Normalize the filter
sobel_filter = sobel_filter / 4

# Apply the vertical Sobel filter
filtered_image = np.abs(cv2.filter2D(image.astype(float), -1, sobel_filter))

# Normalize the filtered image
filtered_image = cv2.normalize(filtered_image, None, 0, 255, cv2.NORM_MINMAX,
                               dtype=cv2.CV_8U)

# Display the original and filtered images
fig, axs = plt.subplots(1, 2, figsize=(10, 5))
axs[0].imshow(image, cmap='gray')
axs[0].set_title("Original Image")
axs[0].axis("off")
axs[1].imshow(filtered_image, cmap='gray')
axs[1].set_title("Filtered Image (Vertical Lines)")
axs[1].axis("off")

# Show the plot
plt.show()
```

Original Image



Filtered Image (Vertical Lines)



```
[12]: import cv2
import numpy as np
import matplotlib.pyplot as plt

# Load the image
image = cv2.imread("horse_image.jpg")

# Convert image to RGB
image_rgb = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)

# Apply Unsharp filter
blurred = cv2.GaussianBlur(image_rgb, (0, 0), sigmaX=10)
sharpened = cv2.addWeighted(image_rgb, 1.5, blurred, -0.5, 0)

# Create a figure and plot both images
fig, axs = plt.subplots(1, 2, figsize=(10, 5))
axs[0].imshow(image_rgb)
axs[0].set_title("Original Image")
axs[0].axis("off")
axs[1].imshow(sharpened)
axs[1].set_title("Improved Image")
axs[1].axis("off")

# Show the plot
plt.show()
```

Original Image



Improved Image



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