filter-application

October 14, 2024

1 Applying Filters like Gaussian, Median, Uniform (Low-Pass) filter and High pass filter on Image

[1]:
```
import numpy as np
import matplotlib.pyplot as plt
from skimage import io, img_as_float
from skimage.filters import gaussian, median
from skimage.morphology import disk
from scipy.ndimage import uniform_filter

# Add the image path
image_path = r"C:\Users\roari\Downloads\Gray.jpeg"
image = img_as_float(io.imread(image_path, as_gray=True))

# Apply Gaussian filter (Low-Pass Filter)
gaussian_filtered = gaussian(image, sigma=1)

# Apply median filter
median_filtered = median(image, disk(3))

# Apply uniform filter
uniform_filtered = uniform_filter(image, size=3)

# Apply High-Pass filter (original - blurred)
blurred_image = gaussian(image, sigma=2)
high_pass_filtered = image - blurred_image

plt.figure(figsize=(15,10))

plt.subplot(2,3,1)
plt.title("Original Image")
plt.imshow(image, cmap='gray')
plt.axis('off')

plt.subplot(2,3,2)
plt.title("Gaussian Filtered Image - Low Pass")
plt.imshow(gaussian_filtered, cmap='gray')
```

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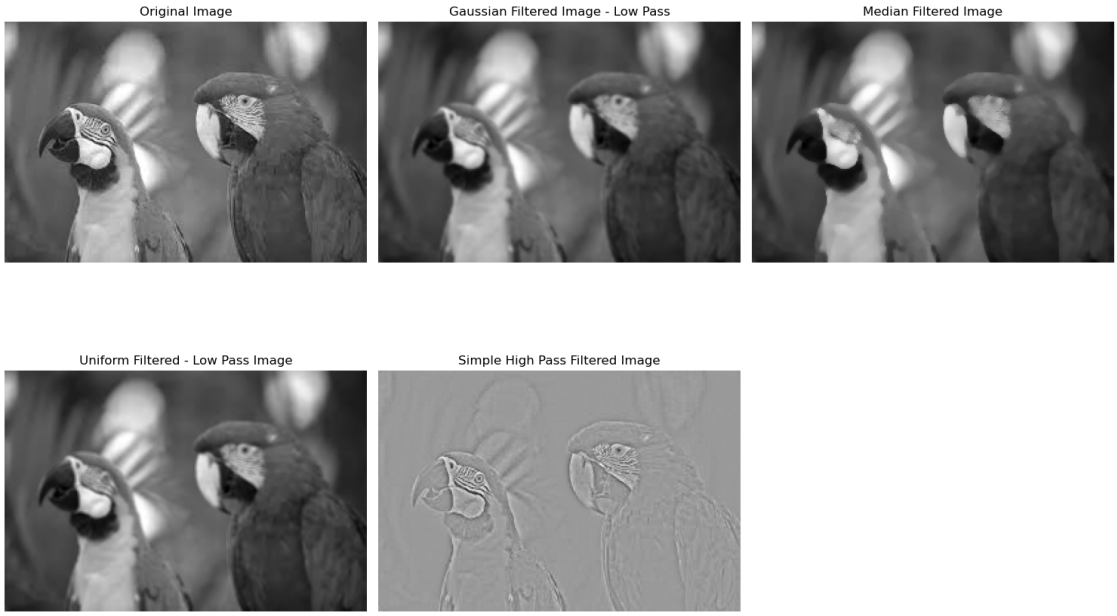
plt.axis('off')

plt.subplot(2,3,3)
plt.title("Median Filtered Image")
plt.imshow(median_filtered, cmap='gray')
plt.axis('off')

plt.subplot(2,3,4)
plt.title("Uniform Filtered - Low Pass Image")
plt.imshow(uniform_filtered, cmap='gray')
plt.axis('off')

plt.subplot(2,3,5)
plt.title("Simple High Pass Filtered Image")
plt.imshow(high_pass_filtered, cmap='gray')
plt.axis('off')

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



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