job01a

September 22, 2024

[ ]:
```
#!/usr/bin/python3
import cv2
import numpy as np
import matplotlib.pyplot as plt
from PIL import Image
```

[ ]:
```
root_path = '/root/DIVP_project/'
image_path_vivid = "project01/proj01-images/lena_std.bmp"
image_path_gray = "project01/proj01-images/Fig2.22(b).jpg"
image_path_tif = "project01/proj01-images/Fig0308(a)(fractured_spine).tif"
```

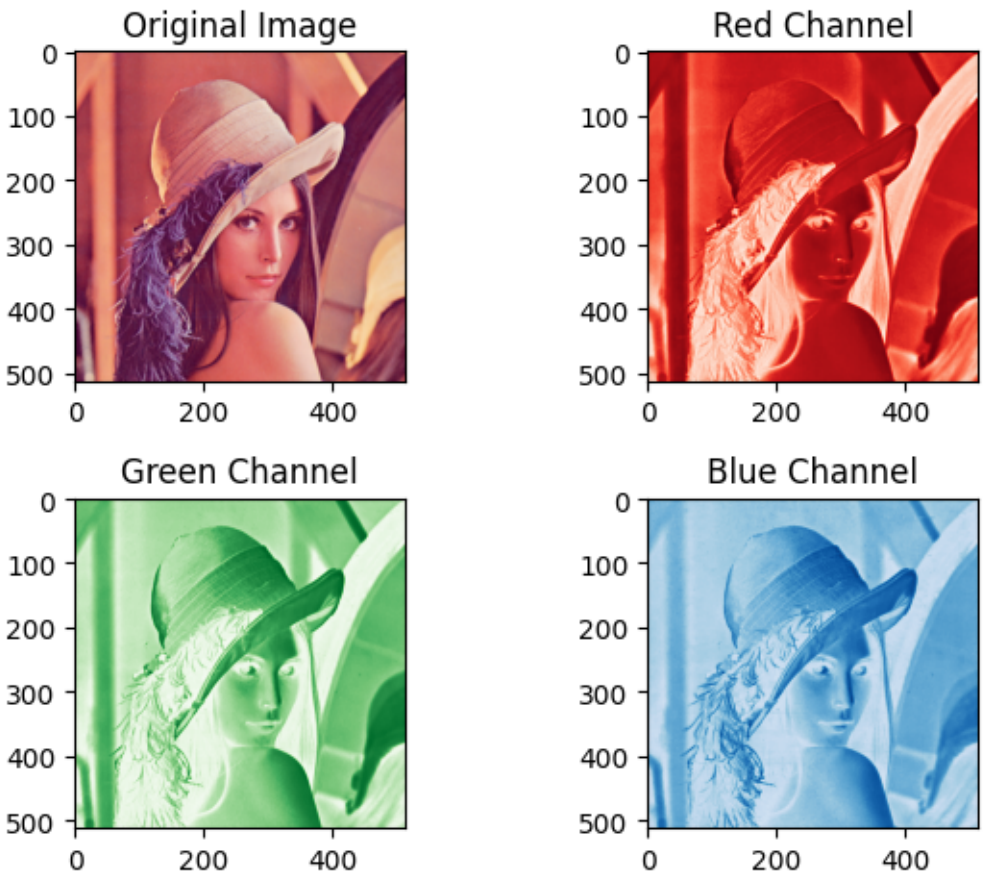
[ ]:
```
#
img = cv2.imread(root_path+image_path_gray, cv2.IMREAD_COLOR)
print(img.shape, img.dtype)
b,g,r = cv2.split(img)
```

```
(256, 256, 3) uint8
```

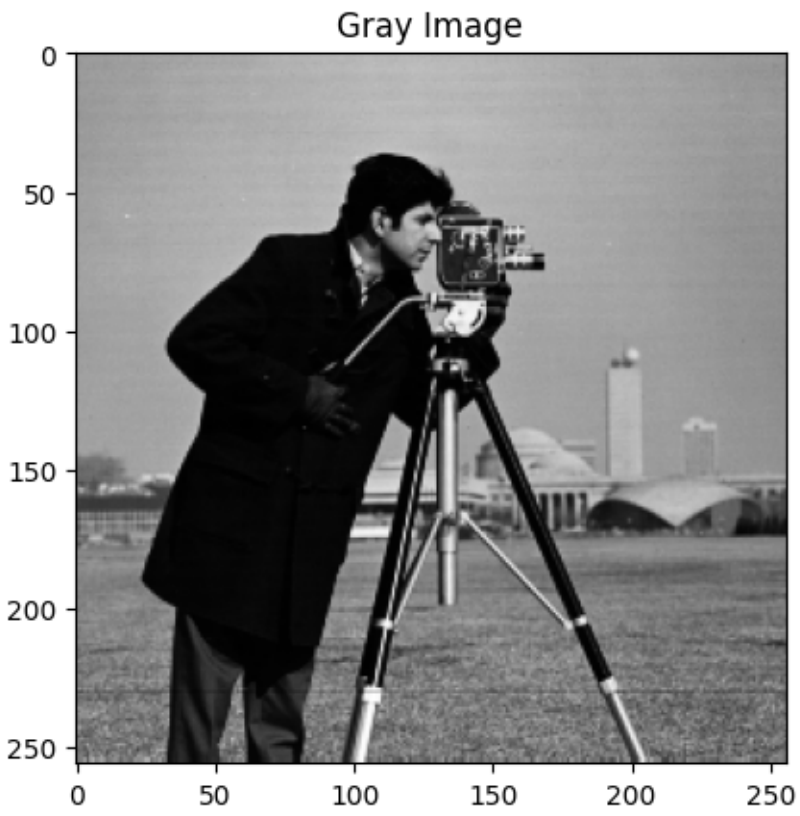
[ ]:
```
#  PIL Image
img_pil_gray = Image.open(root_path+image_path_gray)
# img_pil_gray.show()
print(type(img_pil_gray))
print(img_pil_gray.size)
print(img_pil_gray.mode)

img_pil_vivid = Image.open(root_path+image_path_vivid)
# img_pil_vivid.show()
print(type(img_pil_vivid))
print(img_pil_vivid.size)
print(img_pil_vivid.mode)
```

```
<class 'PIL.JpegImagePlugin.JpegImageFile'>
(256, 256)
L
<class 'PIL.BmpImagePlugin.BmpImageFile'>
(512, 512)
RGB
```

[ ]:
```
if img_pil_vivid.mode == 'RGB':
    r,g,b = img_pil_vivid.split()
    #  matplotlib
    plt.figure()
    plt.subplot(221)
    plt.imshow(img_pil_vivid)
    plt.title('Original Image')
    plt.subplot(222)
    plt.imshow(r, cmap='Reds')
    plt.title('Red Channel')
    plt.subplot(223)
    plt.imshow(g, cmap='Greens')
    plt.title('Green Channel')
    plt.subplot(224)
    plt.imshow(b, cmap='Blues')
    plt.title('Blue Channel')
    plt.tight_layout()
    plt.show()
elif img_pil_vivid.mode == 'L':
    plt.figure()
    plt.imshow(img_pil_vivid, cmap='gray')
    plt.title('Original Image')
    plt.show()
```



[ ]:
```
if img_pil_gray.mode == 'L':
    plt.figure()
    plt.imshow(img_pil_gray, cmap='gray')
    plt.title('Gray Image')
    plt.show()
```



[ ]:
```
#  tif
image_tif = Image.open(root_path+image_path_tif)
print(type(image_tif))
print(image_tif.size)
print(image_tif.mode)
```

```
<class 'PIL.TiffImagePlugin.TiffImageFile'>
(746, 976)
L
```

[ ]:
```
if image_tif.mode == 'L':
    plt.figure()
    plt.imshow(image_tif, cmap='gray')
    plt.title('Gray Image')
    plt.show()
```


Gray Image
0
200
400
600
800
0
200
400
600