image_informatics_lab_5

December 5, 2022

1 Image Informatics - Lab 5

1.1 Fourier

Tasks:

1. Develope an ideal band pass filter - i.e. only frequencies between two discrete thresholds (upper and lower) are filtered out. Connect the upper and lower threshold levels to slider controls.
2. Find the best N correlation matches in the image rather than only the best match. Connect parameter N to slider controls. Try this for faces in the room etc. (at a fixed distance), keyboard letters or another similar genre of patterns. Remember as N increases the quality of the matching will decrease and more false matches will be introduced. When does it work or not work ? (why ?).

[1]:
```
import numpy as np
import matplotlib.pyplot as plt
from scipy.fft import fft2, fftshift
from skimage import data, img_as_float

im = img_as_float(data.camera())
imfft = fftshift(fft2(im))
imm = np.log(np.abs(imfft))

fig = plt.figure()
ax = fig.add_subplot(1, 2, 1)
p = plt.imshow(im)
t = ax.set_title('image')

ax = fig.add_subplot(1, 2, 2)
p = plt.imshow(imm)
t = ax.set_title('Fourier')
```

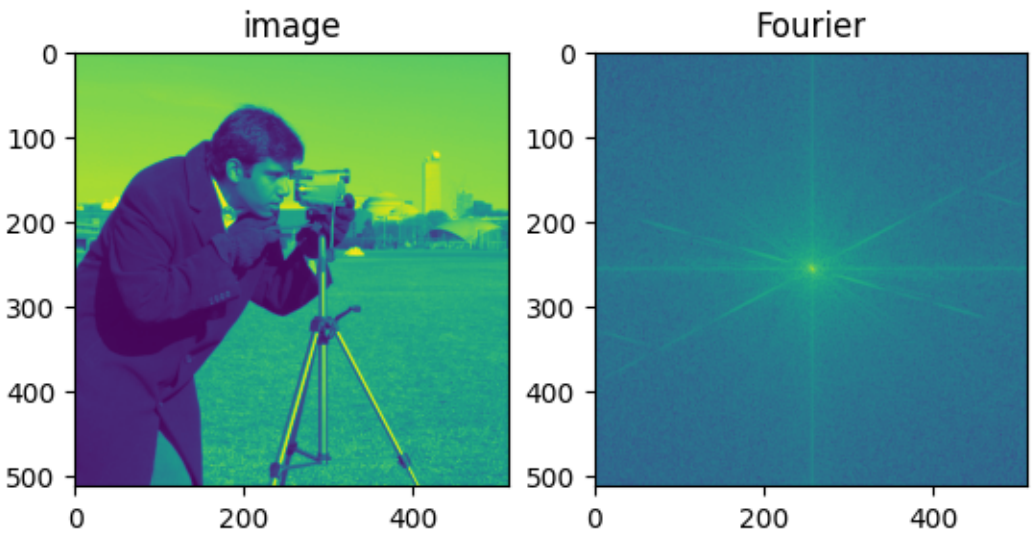
image
Fourier
0
100
200
300
400
500
0
200
400

[ ]: