Continuous Evaluation 2 (CE2)

Submit only one python file containing code (“yourname.py”).

The input image is “blurry_moon.tif.” Our objective is to enhance this image using frequency domain processing.

(a) Apply Butterworth high pass filter to get sharp features in the image. The obtained output is the mask. Scale the mask by a value k and add the result to the original image. Select the appropriate value of Do, n and k.

(b) Apply Gaussian high pass filter to get sharp features in the image. The obtained output is the mask. Scale the mask by a value k and add the result to the original image. Select the appropriate value of Do and k.

Your code should print the value of Do, n and k. It should also plot the input and output in each case ((a) and (b)).

Hint:

1) The functions for evaluating 2D FFT and centering fourier image are available in the numpy module.

2) To identify Do, analyse the Fourier transform of input image.

Reference: Section 4.7 and 4.9 in Gonzalez book