1 Constructing Convolution Kernel

In this exercise, we will use convolutions to distort images. Edit the file `convolution.ipynb`.

1.1 Gaussian Filter

a) Construct a gaussian filter with $\sigma = 3.0$ and convolve the file `images/kodim15.png` using this kernel.

b) What kernel size did you choose and why?

c) Visualize the fourier spectrum (magnitude) of the original image, the kernel, and the convolution result.

I needed the following time to complete the task:

2 Estimating Convolution Kernel

In this exercise, we will estimate kernels that were used to distort images. You may use various techniques to do so.

a) The file `images/kodim15b.png` was distorted with some sort of directional blurr filter. Estimate the parameters of the filter as precisely as possible.

b) Describe the procedure you used for estimating the distortion.

c) The file `images/kodim15c.png` was also distorted with some sort of blurr filter. Estimate the parameters of the filter as precisely as possible.

d) Describe the procedure you used for estimating the distortion.