

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.



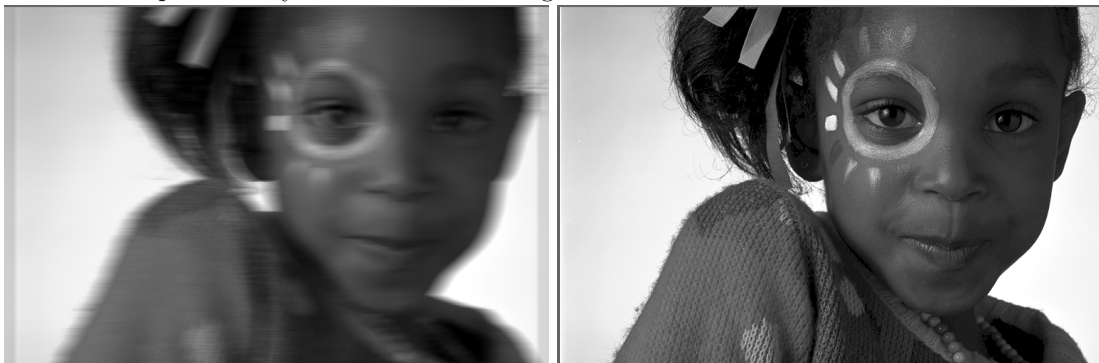
- b) What kernel size did you choose and why?
- c) Visualize the fourier spectrum (magnitude) of the original image, the kernel, and the convolution result.

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.

