

### Practise session 5: Image Enhancement

1. The captured Lena-image in Fig. 1 contains additive noise, i.e.  $g(x, y) = f(x, y) + n(x, y)$ . Find out the model or the distribution of the additive noise  $n(x, y)$  and also the corresponding parameters for the distribution.

Which assumptions are you using in the modelling? (1)

2. When the model for the noise is known, the actual information  $f(x, y)$  can be reconstructed from the captured image  $g(x, y)$ . Now remove the noise from Lena-image shown in Fig. 1. Use the information of the distribution of the noise found in Task 1.

For this case the original image is also available. What is the quality of the reconstructed image when compared to the original image? (1)

3. Lena-image in Fig. 2 has experienced various image processing operations. Now apply image sharpening to the image. (1)



Fig.1. Noisy Lena-image.

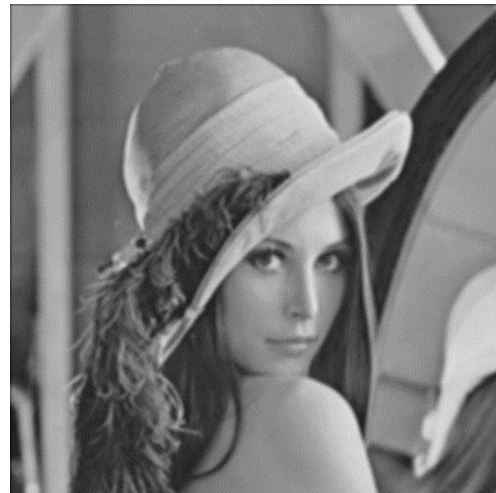


Fig. 2. Smooth Lena-image.