# Medical Image Analysis Exercises: Session 02

http://physics.medma.uni-heidelberg.de/cms/

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## 03: measures of image quality

input: `eight.tif` from MATLAB

a: add noise

- add Gaussian white noise of mean 0 and variance 0.02 to the image

b: mean-squared error (MSE)

- compute MSE between the original image and the noisy image using MATLAB functions
- compute MSE between the images by definition
- display the values in the console

c: peak signal-to-noise ratio (PSNR)

- compute PSNR of the noisy image using MATLAB functions
- compute PSNR by definition
- display the values in the console

## 04: intensity adjustment

input: `'rice.png'` from MATLAB

a: adjust image intensity values

- increase the contrast of the image dark part by mapping the lower half of intensity values to the full range of intensity values (according to the dynamic range of image class)
- increase the contrast of the image bright part by mapping the upper half of intensity values to the full range of intensity values (according to the dynamic range of image class)

b: display

- display 6 axes in one figure, including 3 different images and the corresponding histograms
- specify the same x-axis limits for all histogram axes