MATLAB Workshop

TECHNISCHE HOCHSCHULE LÜBECK

Sheet 6 – Plotting - Advanced Plots

Please write all commands in the MATLAB editor into one single m-file and save it in a folder that you specifically dedicate to this workshop. If you don't know how a command is being used type "`help [commandname]`" into the command window. Comment each code line briefly to document what it is doing.

Exercise 1:

Using the histogram function, show the difference between the output data of the `rand` vs `randn` functions.

Exercise 2:

Use the function `peaks` to get three output arguments assigned to variables `x`, `y`, and `z`. This function will create coordinates `x, y` and 2-dimensional data `z` by scaling Gaussian distributions.

a) Create from the data in `z` a surface plot with appropriate labelling of the three axes.

b) Create from the data in `z` an image plot with `imagesc` also with appropriate labelling of both axes and a color bar.

Exercise 3:

a) Generate a family of curves representing eight parallel horizontal lines who consist of the same vertical distance to the preceding horizontal line. Store these curves as columns in a matrix called `colormatrix`.

b) Generate a "rainbow-plot" by using the `plot` command.

c) Change the color of each line using commands such that the plot looks like a rainbow made out of lines. For that set the property `'Color'` to appropriate values. The function `hsv2rgb` may be helpful here. Furthermore, set the line width of each line to a value of 3.