University of North Dakota
Department of Electrical Engineering

EE 456 Digital Image Processing

Homework #1

1. Write a MATLAB program that performs Gamma correction on a given image. Use three different values for gamma to get contrast enhanced images. Run your program using "forest_gray.png" image. Submit the followings:
    a. Source code,
    b. Original image and its histogram,
    c. Three contrast enhanced images and their histograms. Use imhist command to plot histograms. **Do NOT use built-in MATLAB command for gamma correction.**

2. Write a MATLAB program that finds the histogram and normalized histogram of a given gray level image. Run your program using "pout.tif" image. Submit the followings:
    a. Source code,
    b. Histogram and normalized histogram. **Do NOT use built-in MATLAB command imhist for histogram.**

3. Write a MATLAB program that performs the histogram equalization operation on a given gray level image. Run your program using "pout.tif" image. Submit the followings:
    a. Source code,
    b. Original image and its histogram,
    c. Histogram equalized image and its histogram. **Do NOT use built-in MATLAB command histeq for histogram equalization.**

Notes:

1. Use subplot function to show your images and other plots, so that they look visually organized.
2. Submit your file as a single PDF file.