ECE 5470 Digital Image Processing
Homework # 3

Due Date: February 17, 2020 4:00 pm

1. Histogram Equalization

b. Write MATLAB code for computing the histogram of an image.
c. Implement the histogram equalization technique
d. Apply to the image Fig3-1.jpg

Your report should include our own MATLAB code, the original images, a plot of its histogram, the enhanced image and a plot of it histogram. Analyze the output images and explain the results

2. Smoothing Spatial Filtering

a. Write program to perform smoothing spatial filtering of an image. You can use the size of the smoothing spatial mask at 3 x 3 and 5x5 with the coefficients 1
b. Download "donation.tif" to perform smoothing spatial filtering.
c. Compare the results of each filter mask
d. Download "Fig3-2b.tif" to perform smoothing spatial filtering and then apply thresholding to make black a white image .

Your report should include your own MATLAB code, the original image, and the enhanced images. Use this information to explain what was enhanced as it was for each image.

3. Order-Statistics Filters

a. Apply 3x3 median filter, max filter, and min filter to image Fig3-3.tif.
b. Describe the effects and differences between median filter, max filter, and min filter.
c. What will be the effects on the image if we increase the filter size in (3.b) such as 5x5?

Your report should include your own MATLAB code, the original image, and the enhanced images. Use this information to explain what was enhanced as it was.