ECE 429/529 Digital Image Processing

Fall 2020

Dept. of Electrical and Computer Engineering **Miami University**

Homework 4 Assignment

Weights: 50pts
Due Date: October 5, 2020.
Turn in Method: Upload your homework by the midnight of October 5
Note: Please turn in all of your programs and a single document including original figure and all processed images with appropriate explanations.

1. Get the image from the class web-site (einstein-low-contrast.tif). Use histogram statistics (slide #23-28 of lecture note #5) and fuzzy logic method outlined in textbook page 234-236 (slide #16-20 of lecture notes #7) to enhance its contrast.
    a. Based on histogram statistics described in lecture note #5
    b. Using the first set of fuzzy logic rules
        i. IF a pixel is dark, THEN make it very dark (say, 0)
        ii. IF a pixel is gray, THEN make it gray (say, 127)
        iii. IF a pixel is bright, THEN make it brighter (say, 255)
    c. Using the second set of fuzzy logic rules
        i. IF a pixel is dark, THEN make it darker (say, minus 10)
        ii. IF a pixel is gray, THEN keep it gray (say, do nothing)
        iii. IF a pixel is bright, THEN make is brighter (say, increase by 10)