Lecture 2 ECE 447

Intensity Transformation

Download the image ben.jpg from Blackboard (Exercises sub-directory).

In today's demonstration you will learn to use the following Python functions: imread, rgb2gray, imshow.

1. Distinctive intensity transformation.

    a. Compute the negative transformation of ben.jpg.

    b. Perform a logarithmic compression with (i) c = 0.1; (ii) c = 10; and (iii) c= 1000. What effect does c have on the image?

    c. Perform a power, or gamma, transformation with (1) α = 0.1; (ii) α = 0.5; (iii) α = 10 (using your own function). What effect does α have on the image?

2. Non-distinctive transformation

    a. Perform a logarithmic compress with (i) c = 0.1; (ii) c = 10; and (iii) c = 1000. But this time perform the transformation on the lookup table (or color map) rather than the raw image, and use rgbplot to show the effect of α on the color map. Does it agree with your observation in 1b above?

    b. Repeat 1c above, but this time perform the operation on the color map rather than on the raw image.