Prof. A. Zakhor   Spring 2008

EE225b – Digital Image Processing
Assignment #5 – Image Enhancement

Overview:

A problem frequently encountered in image processing is dealing with variations in lighting conditions. Often, the first step in any image processing algorithm is to adjust the brightness and contrast of the image. But what happens if a scene contains areas of both high contrast and low contrast, and both high brightness and low brightness? In this assignment, you will address this problem.

Assignment specifics:

On the website, there is a file `Berkeley.jpg`, which is a 1024x768, 256-grayscale image of downtown Berkeley taken on a bright sunny day. Unfortunately, the image was taken in the shadow of a building and the not-so-great camera couldn't compensate for the bright blue sky and the dark shadow simultaneously. As a result, the sunlight areas are a glaring white, and the shadow areas are dark and low contrast. Using the image enhancement techniques covered in class, increase the contrast and the brightness of the dark areas, and reduce the brightness of the sunny areas. Your goal is an image which looks like it might be taken at noon on a cloudy day. Make a print out of your enhanced image and submit it along with a lab writeup in class on the due date. The writeup should describe in detail the technique(s) which you applied. You will be graded in part on the quality of your enhanced image, so do your best!

Also please submit all your `.m` files via email to zhanghao8301@gmail.com. Email submissions must be received before class on the due date. There should be an executable Matlab script `Lab7.m` which will generate all your results.