

Homework #2

Due: 4/21/2011 (11:59pm)

1. (40pts) Write a function of gamma correction for the transformation of image luminance. First, translate the RGB color image to YIQ color space. Second, using gamma transform to correct the image luminance. Finally, translate to RGB color space. The input to the function is the filename of a color image and the gamma value and the output is the output image. Apply the function to the following two images and show the results for two different gamma values to obtain darkening and lightening effects.



2. (60pts) Write an image interpolation function to upsample the following images by 4 times the original width and height. You should implement three interpolation schemes, including nearest-neighbor, bilinear, and bicubic interpolation. Compare the PSNR of the interpolation results and the computational cost.

