Digital Image Processing

Fall 2021

**Assignment #5**

**1. Converting colors from RGB to HSI**

Write a matlab program that converts arbitrary RGB image to HSI image (do not use matlab built-in files).

Apply your program to convert image “rgb.jpg” to H, S and I components, and display each component as gray scale image.

**将rgb转为HSI，并显示H,S,I**

**2. Pseudo-Color Image Processing**

(a) Implement Fig. 6.23, with the characteristic that you can specify two ranges of gray-level values for the input image and your program will output an RGB image whose pixels have a specified color corresponding to one range of gray levels in the input image, and the remaining pixels in the RGB image have the same shade of gray as they had in the input image. You can limit the input colors to all the colors in Fig. 6.4(a).

(b) Download the image in Fig. 1.10(4) and process it with your program so that the river appears yellow and the rest of the pixels are the same shades of gray as in the input image. It is acceptable to have isolated specs in the image that also appear yellow, but these should be kept as few as possible by proper choice of the two gray-level bands that you input into your program.