

Computer Vision
Homework 1
Due Sept 25, 2009

In this homework you will write ImageJ filters like the Image_Inverter that we wrote in class. Each filter should be in a single class, and each classnames must include at least one underscore. If you put your class in the plugins directory of your ImageJ installation, you should be able to compile it and run it through ImageJ's plugins window.

Some useful documentation:

ImageJ API JavaDoc: <http://rsbweb.nih.gov/ij/developer/api/index.html>

ImageJ HowTo's: <http://imagejdocu.tudor.lu/doku.php?id=howto:start>

How to Install a Plugin and the Eclipse HowTo might be valuable
Image_Inverter.java , in the plugins/examples directory

1. Write filters to convert color images to gray scale images. (Hint: you will want to use a ColorProcessor object to represent your image.)
 - a. Write a filter that simply averages the R, G, and B values from the original image.
 - b. Write a filter that converts the color image (ROI) to luminance. This is exercise 3.6 part 1. Luminance is defined in Section 2.3 of your textbook (the Y value in equation 2.102
2. Write a filter that performs Histogram Equalization (according to our notes) on a grayscale image. (This could be the image derived from part 1.) This is exercise 3.6 part 2.