Homework 6:

Due on Dec 3

Part I: Classification

A set of five cherry images are available in Angel. Each image includes 18 cherries with different color signatures placed on a generally white background. Five images were taken with five different lighting conditions. In addition to cherries, there are standard color blocks and some other planner objects attached to the background.

Use color features (both in RGB and HIS) and geometric features to classify cherries into individual groups using Bayesian classifier (use code from your Matlab text book; Gonzalez, Woods and Eddins, 2004; Digital Image Processing using Matlab; page 493). You result should include the following classes of objects:

1) Dark Color Cherries
2) Moderate Color Cherries
3) Light Color Cherries
4) Dark Color Rectangles
5) Moderate Color Rectangles
6) Light Color Rectangles
7) Sticky notes

Anything and everything not included in the classes above is background. Use 75% of samples for training and 25% for testing of the classifier.

Part II: Motion

Take a sample video on your own using web-cam or regular digital camera. Make sure there is one object (and only one) moving on the scene and rest is stationary. Use Matlab to read in the video and generate motion history and motion energy images for a segment of 15 seconds of the video.

BonusHW: *Use a NN implementation to solve Part I (10 points transferable to any homework assignment). For example, if you lost 10 points in total in all the homework assignments in this class, you can make that up with this bonus HW.*