**Computer Vision – Homework/Project 3**

Implement, in Matlab, an algorithm to categorize objects using shape information alone. You can use any of the algorithms given in class, some extension of these found in published papers, or derive your own, but you must justify your choice.

Test your algorithm on the ETH-80 database. The database is available here:
http://cbcsnas01.ece.ohio-state.edu/eth80-cropped256.zip

This database is described in this paper:
http://www.vision.ee.ethz.ch/publications/papers/proceedings/eth_biwi_00413.pdf

To test your algorithm, use the leave-one-object out approach. That is, use 9 objects in each of the 8 categories as samples (or training data), and the left object in each category (8 total) to test the algorithm. Repeat this process 10-50 times, each time leaving a different set of objects out for testing. Report mean and standard classification accuracy.

Here are samples of each of the 10 objects in each of the 8 categories.

Here is an example of the contour (shape) you can extract from the masked provided in this database.

Optional: Test your algorithm on the ETHZ shape database found here:
http://www.vision.ee.ethz.ch/en/datasets/

Project Submission Requirements:

1) Submit your Matlab code and a 1-page report with your rational for the selected algorithm and description of the results.
2) Please make sure to submit your MATLAB scripts in a .zip file entitled with your last name and the project number; example: "yourlastname_project2.zip".
3) Once your project is extracted it should be able to run without any modifications. (When referencing the data set in MATLAB do not use the absolute path. Refer to the data using the relative path with respect to your project. An example "./../Natural_Scenes/".
4) In the submission .zip file do not copy the data set. Assume your project folder is next to the data set folder; e.g.,