Advanced Image Processing
Assignment 1 (Due date: 6th Feb., 2017)

1) **Edge Detection:** Select a gradient-based edge detector. Apply the edge detector and LOG to an image of your choice with different noise levels and compare the performance. DO NOT use matlab or any other functions directly.

2) **SIFT:** Choose two images and apply the SIFT algorithm on them. You can use Matlab/OpenCV, etc. implementation. Compute the features for different transformations of the images, eg. adding noise, rotation, etc. Analyze the results, for example, how many of the same features are getting detected, how the feature descriptors are changing, etc.

3) **Object Categorization using SIFT:** Here, we will perform a simple object categorization experiment. Choose 5 categories, eg. cat, dog, etc. and get few images (say 5 each) for each category. Now, take one of them as the model, and see if you can correctly categorize the other images. You can also use the transformed images of the input model as part of your data.

In the report, you should provide the following:

1) Details of your implementation. There is no need for description of SIFT, etc.

2) Analysis of the results.

3) Code, results.