Assignment 6

Machine Learning CS6375.001

Part III

**Parameters:**

Each image takes a different value of k (# of clusters) to get segmented close to the actual image. The three images chosen have also been segmented at different values of k which can also be noted in the output images in the clusteredImages/ folder.

All of the images were run with random values of # of clusters (k) and the most prominent one of those images was chosen to represent as the clustered image of the image. The random values ranged anywhere between 2 to 20.

There is always a trade-off between the number of clusters versus the time taken to compute the clustered images. A smaller value of cluster will give a bad clustered image whereas a large value of k will take a lot of time to converge.

**Image Names:**

The clusteredImage/ folder contains three images which have been segmented at values of k which we thought were best in terms of the image. The image names have been written as:

<image-name>\_k\_<value of k>.jpg

**How to run:**

The code takes two arguments:

*-i IMAGE, --image IMAGE*

Path to the image

Default: 'auto' -- runs on all images in 'images/' folder

*-c CLUSTERS, --clusters CLUSTERS*

# of clusters

Default: 'auto' -- tests on a couple of random values of k

Run as:

python segment.py –i <path\_to\_jpg> -c <# of clusters>

Sample run command:

python segment.py –i image1.jpg -c 17

**Language/Tools/Packages:**

Language: Python

Packages:

1. OpenCV
2. Numpy
3. Scikit-learn