CS 2770 Assignment 2

Sanqiang Zhao (saz31)

1.

Related Python File: image\_representation\_with\_filters.py

Preprocess function handles all the preprocessing (includes grayscale and resize), i.e. preprocess the image file in img folder and generate processed files in img\_processed folder.

filter\_img function handles convolve part and generate filtered result in img\_filter folder. My result format is (original image, filter, filtered image) triple.

calculate\_dist function handles Euclidean distance.

Result for question 6

mean of distance between same class 0.220825635062

mean of distance between different classes 0.224431082999

Result for question 7

mean of distance between same class 0.898946527778

mean of distance between different classes 4.13123680556

Both strategy tell us distance between same class is smaller than distance between different classes. However, the result for question 7 is more clear.

For me, it is hard to see which one is better. Taking mean response of all pixels will lose the position information, which is not preferred. But directly compare pixel by pixel from two images also suffers two images may have different intensity scales but similar contour. So I would prefer normalize two images and then compare pixel by pixel.

2.

Related Python File: hybrid\_images.py

hybrid function will process the image from img2 folder and generate result in img2\_hybrid folder.

3.

Related Python File: feature\_detection.py

extract\_keypoints function, as indicated as question, will generate x, y, score, ix, iy.

find\_corner function generate result. In my plotting (in the img3\_result folder), I put black “X” in the corner candidate positions.

4.

Related Python File: feature\_description.py

compute\_features function, as indicate the question, get gradient from last question implementation, and generate feature.