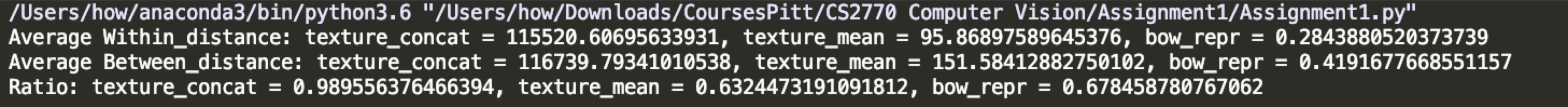
CS 2770 Assignment 1

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For these three representations, the texture\_mean is the within-between ratio smallest (Fig 1) and it is not what I expected.



**Fig 1. Final Result**

The smaller within\_distance means that it successfully detects the same features in the same object. The larger between\_distance means that it successfully separates the different features between different objects. Then when the former one divided by the latter one, the better descriptor will get the smaller ratio as result.

I expected the bow\_repr might be the best representation, the texture\_concat is the worst. However, the bow\_repr is not the best one, the texture\_mean is the best one.

I think it might because of the process of the Feature Descriptor. Part V only allows us to implement the histogram without the Difference of Gaussian. Meanwhile, the bins of the histogram are from -90 to 90 which only point to one side. That means the degree are not uniformly distributed in the whole 360-degree. Due to this process, it might generate a set of descriptors which are not very robust and good. On the other hand, due to the mean operation, the texture\_mean is better than the texture\_concat.

Part I images are in the folder named ‘PartI\_Subplots’;

Part III hybrid image named ‘Hybrid.png’ is stored in the folder ‘Part3\_img’;

Part IV three images with key points are stored in the folder ‘Part4\_vis’;

All the input images are stored in the ‘pics’ folder;

The ‘Assignment1.py‘ is my code for this assignment.

**Reference:**

[1] <https://github.com/hughesj919/HarrisCorner/blob/master/Corners.py>

[2] <https://github.com/raphaelcfernandes?tab=repositories>