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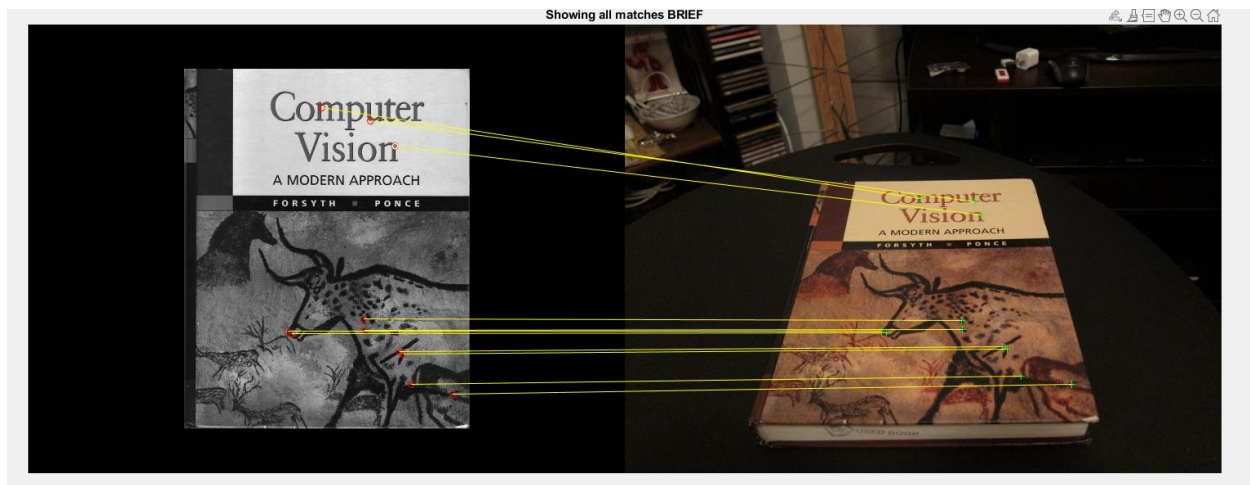
CMPT 412: Assignment 4

Note_1: I would like to use 1 late day for this assignment

Note_2: This assignment has been discussed with Jiangpei Chen

Ans 4.1:

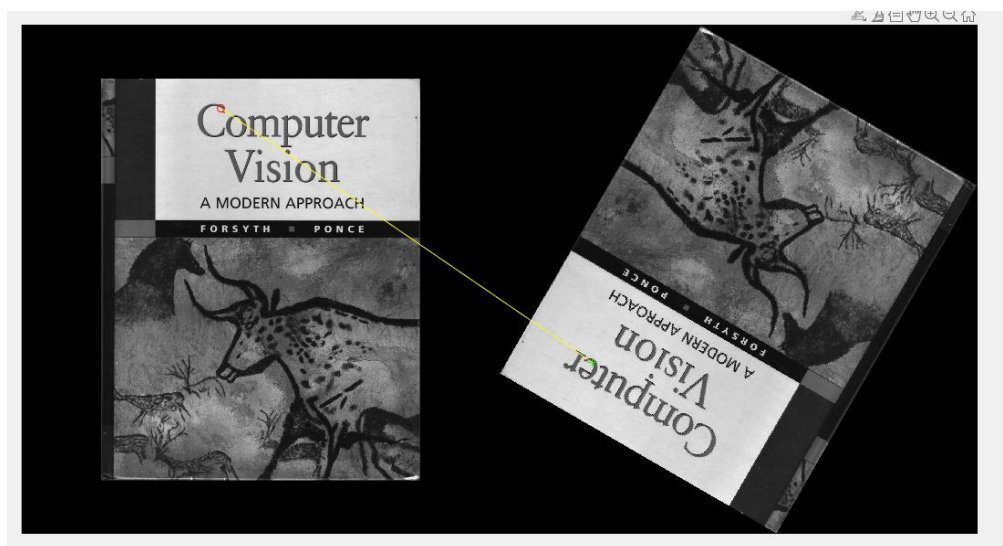
The picture below was the result of using match threshold of 10.0 and max ratio of 0.68 with BRIEF descriptor.



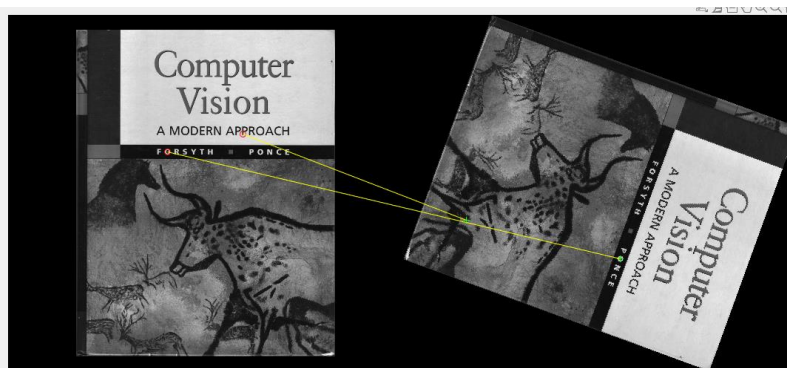
Ans 4.2:

BRIEF descriptor

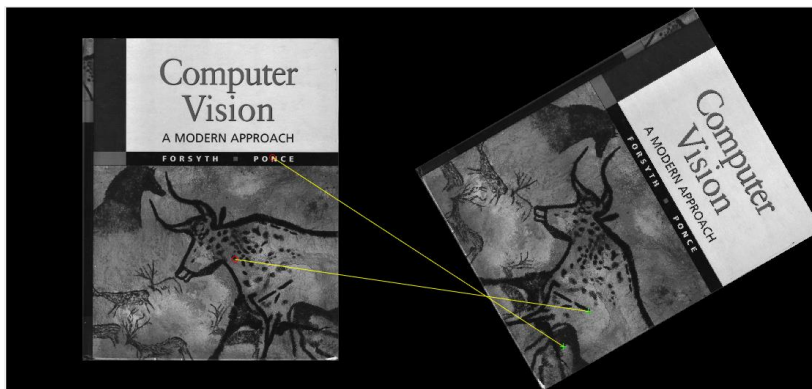
Rotate: 150 degree



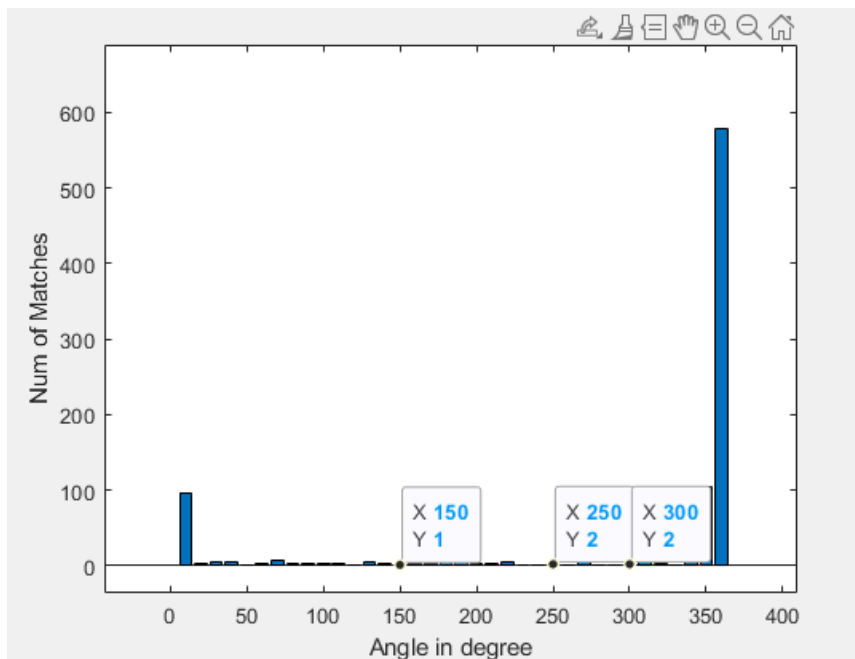
Rotate: 250 degree



Rotate: 300 degree



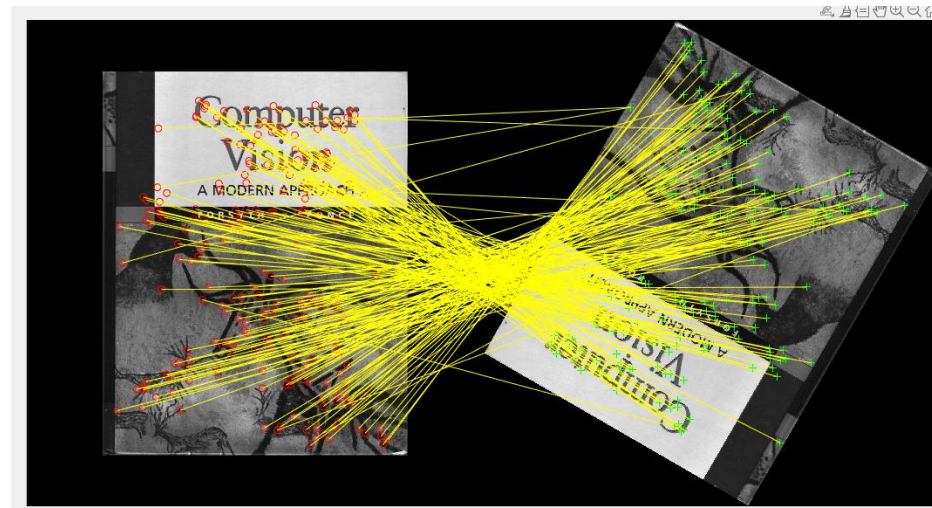
Graph:



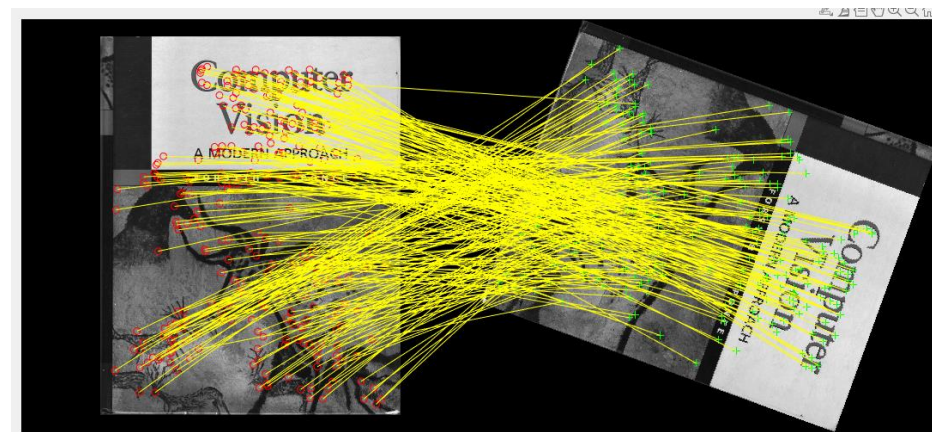
As we can see from the histogram graph that BRIEF descriptor does not work well if the image is rotated. I think the reason that BRIEF descriptor behaves this way is because BRIEF is a general-purpose feature point descriptor. The BRIEF descriptor itself does not provide any method to find the features, so we will have to use another feature detector like SURF, SIFT, etc. to improve the matching result for rotated image.

SURF descriptor

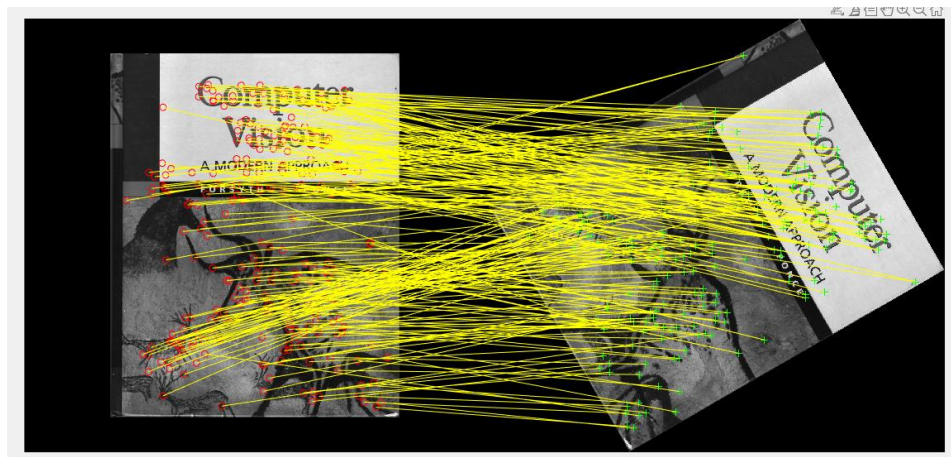
Rotate: 150 degree



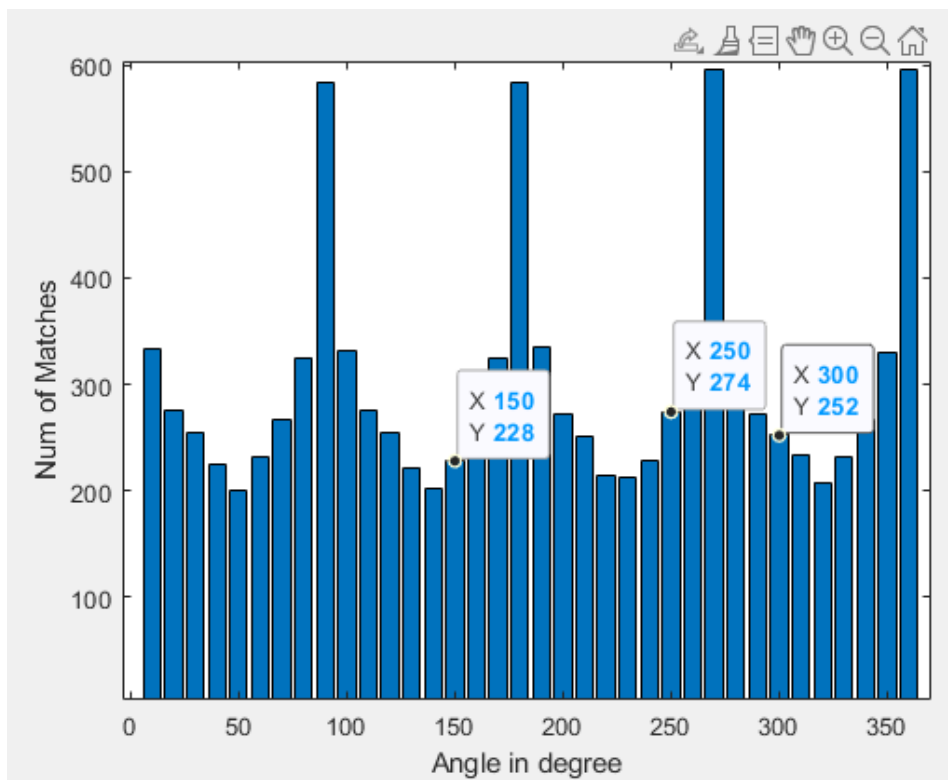
Rotate: 250 degree



Rotate: 300 degree



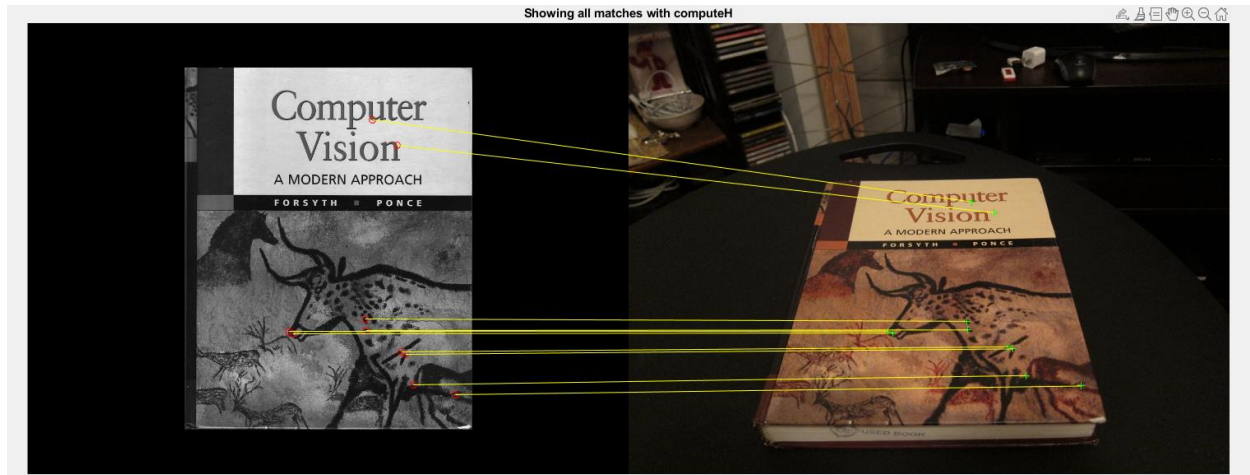
Graph:



As we can see from the graph and the images, there is a huge improvement in finding the features. All the results were obtained by running the "briefRotTest.m".

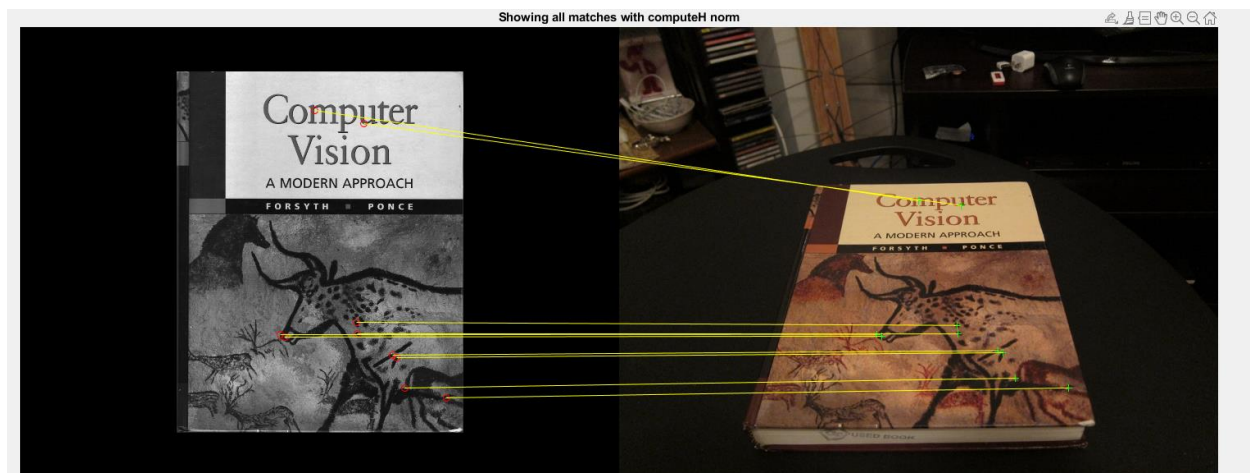
Ans 4.3:

The image below is the result after the homograph transform with randomly 10 points display (same parameters as 4.1 for matchPics). The function is being call in the file name “q2_1_4.m” (run the file to see the result)



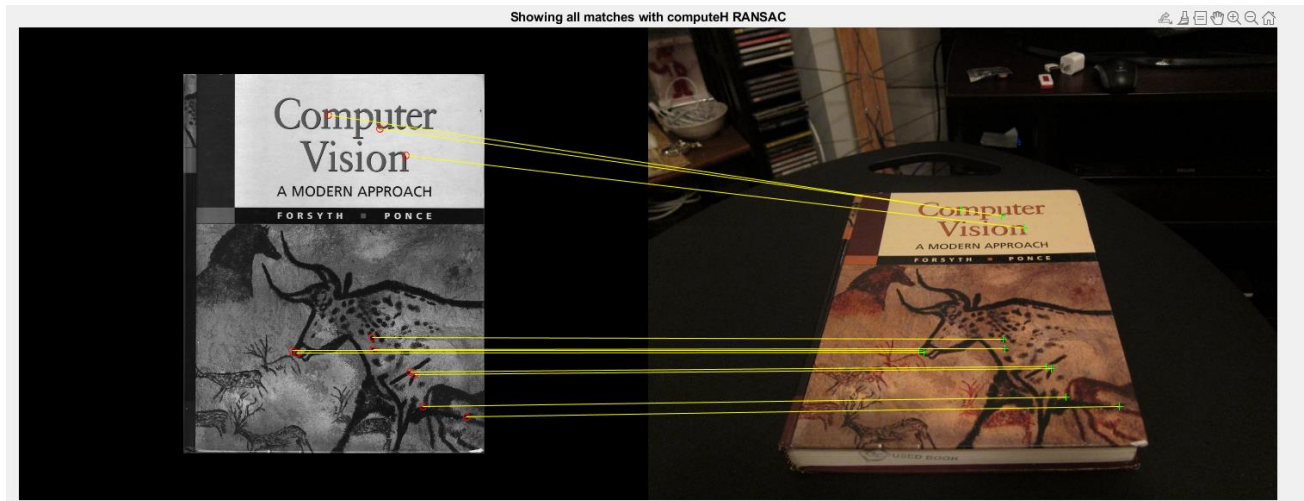
Ans 4.4:

The image below is the result after the homograph normalization with randomly 10 points display (same parameters as 4.1 for matchPics). The function is being call in the file name “q2_1_4.m” (run the file to see the result)

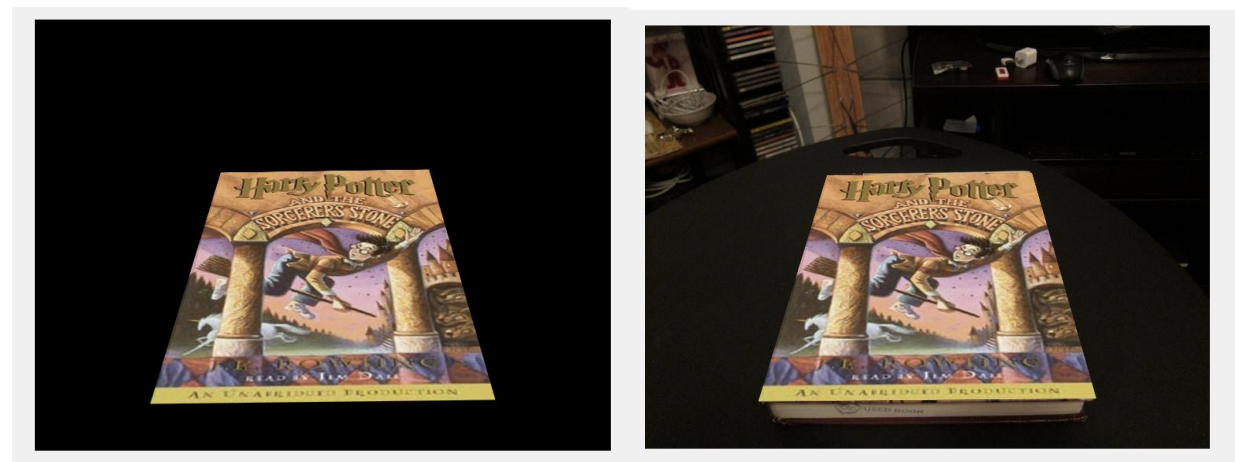


Ans 4.5:

The image below is the result after the RANSAC with 1000 iteration using 4 randomly selected locs1 and locs2 with computeH norm to compute the homography. The function is being call in the file name “q2_1_4.m” (run the file to see the result)



Ans 4.6:



The first image is the warp image and the second one is the composite image. The results were obtained by running the “HarryPotterize.auto.m”.

Part 5

Not complete