Computer Vision Assignment 2

2017CS10340
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Description of the method:
1. I have created two SIFT descriptors (one for each image).
2. I have used the SIFT descriptor to detect key points in both the images.
3. Out of all the matching points (found using BFMatcher), filtered out "good" matching points.
4. If the number of "good" matching points are more than 4, then we can compute Homography.
5. Two homographies with respect to each image is found (to find the order of warping).
6. This is identified by comparing the position of centre pixel after applying the homography. The one which is far, is selected and warpPerspective is performed based on that.
7. Now a graph is constructed with each pixel of next image as node.
8. The weight of each edge is calculated by calculating the norm of difference of colors at that pixel in both images (warped and remained image).
9. Min cut of the above mentioned weighted graph is calculated by using PyMaxFlow library.
10. Pixels values are given based on the result.

All the Good, Bad, In-Sample images and their outputs are saved in the drive
Link:
https://drive.google.com/drive/folders/1uG4-AT_bxjilfqtF2LWFhiOCgFRSzo_u?usp=sharing

Reason for bad output:
1. Most of the image sets which gave bad outputs have an object (with significant size) and a continuous pattern. My model tries to match the object/pattern and fails in matching the other (some times)

2. 3D translation, in that case the model is giving very bad result, this is expected as we only consider 2D transitions in our homography.

Images: