

Date: 04-01-2021

CSE-573 Project 2 - Report

Task 1:

The primary objective was to perform stitching and foreground removal from two image to form a single image.

Implementation:

1. Use SIFT for feature extraction: Get KP and descriptors.
2. Perform matching using standardized Euclidean
3. Perform homography for image-1
4. Use diagonal information of the image to pad image-1
5. Perform warp perspective to get warped image-1
6. Use SIFT on image-2 and image-1 warped
7. Find coordinate distance
8. Find difference using cv2.grabcut
9. Overlapping the images to obtain the results
10. Save the results

Obtained results:



Task-2:

The primary objective of task-2 was Image panorama. Given 4 separate images, perform homography and stitching to get single panoramic image.

Implementation:

1. Finding the overlapping array
2. Use SIFT for feature extraction: Get KP and descriptors.
3. Perform matching using standardized Euclidean
4. Perform homography for image-1
5. Use diagonal information of the image to pad image-1
6. Perform warp perspective to get warped image-1
7. Use SIFT on image-2 and image-1 warped
8. Find coordinate distance
9. Find difference using cv2.grabcut
10. Overlapping the images to obtain the results
11. Repeat for other images
12. Save the results in form of image and txt

Obtained results:

```
[[1. 1. 0. 1.]  
 [1. 1. 1. 1.]  
 [0. 1. 1. 0.]  
 [1. 1. 0. 1.]]
```



Task-3:

Same approach as followed in task-2 was used, however, results are not obtained. We are able to get the overlap matrix.

Results:

```
[[1. 0. 0. 0. 0.]  
 [0. 1. 0. 1. 1.]  
 [0. 0. 1. 1. 0.]  
 [0. 1. 1. 1. 1.]  
 [0. 1. 0. 1. 1.]]
```

References:

1. https://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_imgproc/py_geometric_transformations/py_geometric_transformations.html
2. https://docs.opencv.org/master/d8/d83/tutorial_py_grabcut.html
3. <https://docs.scipy.org/doc/scipy/reference/generated/scipy.spatial.distance.cdist.html>
4. <https://numpy.org/devdocs/>
5. https://opencv-python-tutroals.readthedocs.io/en/latest/py_tutorials/py_feature2d/py_feature_homography/py_feature_homography.html

Thank you