

Assignment 3 - 3D Computer Vision

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16th October 2018

Question 1

The following panorama images are obtained:

Figure 1: Panorama with custom homography estimation



Figure 2: Panorama with in-built homography estimation function

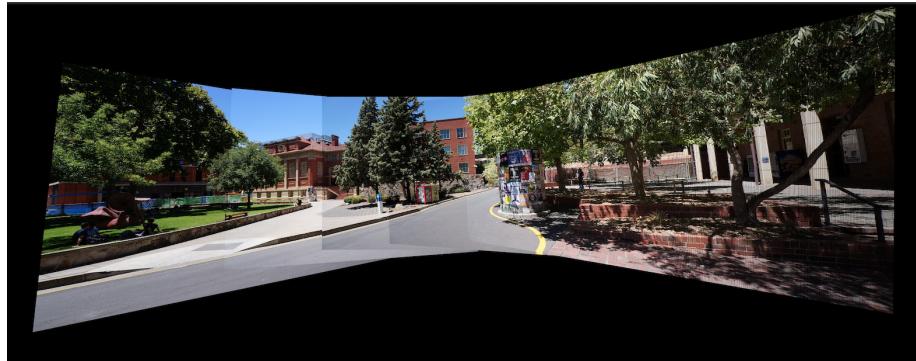


Figure 3: Panorama with custom homography estimation



Figure 4: Panorama with in-built homography estimation



Figure 5: Panorama with custom homography estimation



Figure 6: Panorama with in-built homography estimation



The panorama generated using both the in-built and the custom defined function are almost similar.

Question 2

The outputs are as follows:

Figure 7: Panorama with custom homography estimation



Figure 8: Panorama with in-built homography estimation



Figure 9: Panorama with custom homography estimation



Figure 10: Panorama with in-built homography estimation



Figure 11: Panorama with custom homography estimation



Figure 12: Panorama with in-built homography estimation



Most of the warped images are similar in appearance. However, a few pixels have been displaced. This could be because the homography matrix is not perfect, since the number of keypoints in a given depth level might not be enough to estimate it properly.

References

1. Brown, Matthew, and David G. Lowe. "Automatic panoramic image stitching using invariant features." International journal of computer vision 74.1 (2007): 59-73
2. <https://courses.cs.washington.edu/courses/cse455/09wi/Lects/lect7.pdf>
3. <https://www.pyimagesearch.com/2016/01/11/opencv-panorama-stitching/>