

University at Buffalo

Computer Vision and Image Processing CSE 537

Project 2

Sanjay Bandlamudi Shailendra
50290963
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Algorithm

Given below is the algorithm of the code implemented to Stitch three images to create a panorama.

The code was tested on two datasets. Dataset 1 consists of the three images provided by the faculty. Dataset two consists of images collected on University at Buffalo Campus.

- Compute the Gaussian pyramid and find the difference of Gaussian of the images.
- Compute for keypoints, and descriptors. (Using BRIEF features https://www.cs.ubc.ca/~lowe/525/papers/calonder_eccv10.pdf) (brief())
- Match the descriptor.(Match())
- Compute for a Homography matrix using the matched descriptors(Homography_mat())
- Compute for the best inliers using RANSAC.

Stitch_3(){

- Compute the homography between images 1 and 2 (H1)
- Compute homography between images 2 and 3.(H2)
- Compute for composition between the above two matrices.(H3)
- Stitch images 2 and 3 (img_stitch())
- Warp the image 1 with H3.(warp())
- Stitch image 1 with H3.(img_stitch())

}

Stitch_2(){

Direct stitching of two images.(incase only two images are inputed)

}

Data:

Nevada:



UBDATA

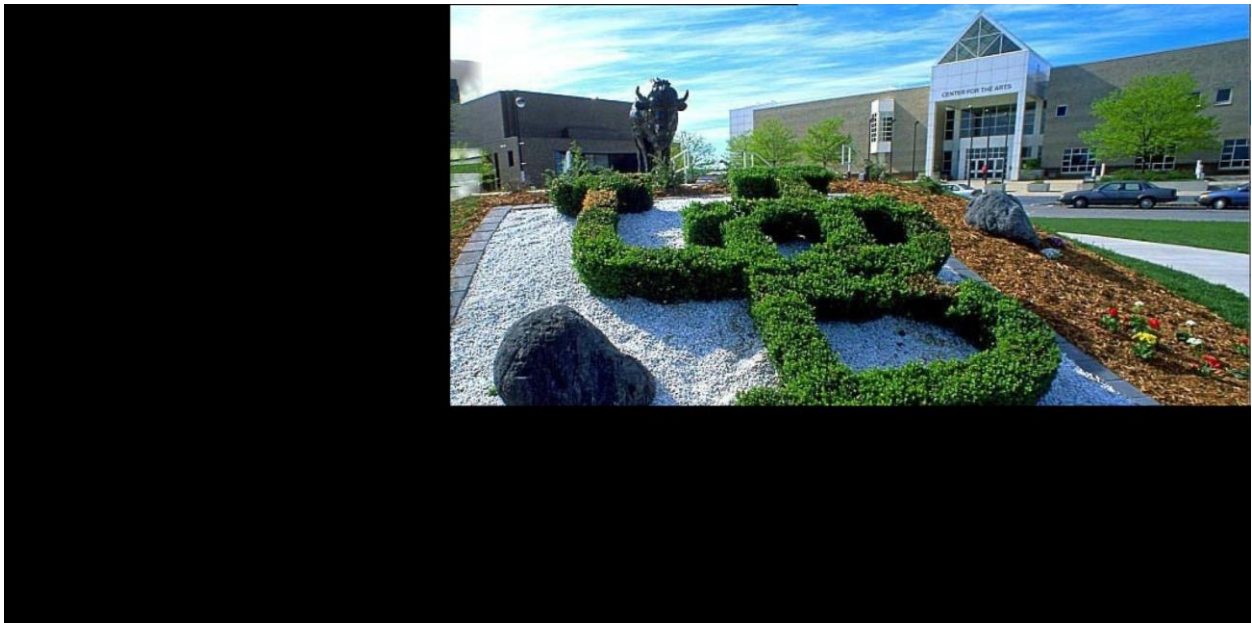


Results

Nevada



ubdata



References

- [1] https://www.youtube.com/watch?v=NPcMS49V5hg&list=PLd3hISJsX_Imk_BPmB_H3AQjFKZS9XgZm
- [2] https://www.cs.ubc.ca/~lowe/525/papers/calonder_eccv10.pdf
- [3] <https://courses.cs.washington.edu/courses/cse576/11sp/notes/ransac.pdf>