Alexandria University

Faculty of Engineering

Computer Department

Computer Vision

Assignment 4

Image Mosaics

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It's required to implement image stitcher to create an image mosaic.

This assignment is divided to 4 parts which as follows:-

1) Getting corresponding points from the two views.
2) Computing the homography parameters, in this part we convert the image points from one view to the homogenous coordinates in the second view.
3) Warping between image planes, in this part we get a new image that's warp of the input image with the homogenous matrix.
4) Create the output mosaic; in this part we create the merged image that shows the mosaic.

Coding Details

First we take the corresponding points as inputs and store them in a 3d array

Second we try to calculate the Homographic array and to calculate it we have to construct the –A- array using the points taken in the first step

Third after calculating the values of the homographic array we have to determine the boundaries of the transformed picture So we determine the transformed position of the to be transformed picture and compare it to the borders of the transformed to picture then construct a new picture using the new extended boundaries meanwhile we calculate the offset of the transformed to image to be used later in the mapping

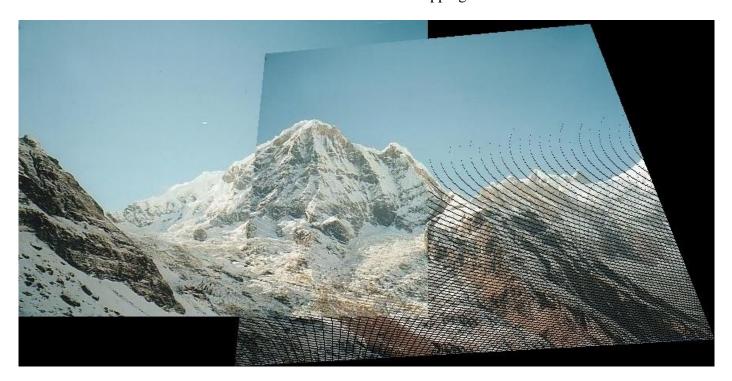Fourth map the transformed to image to the extended picture

Fifth multiply the homographic matrix to locate its position in the mosaic

Sixth to fill in the resulted gaps from the transformed image bydot product the homographic function inverse to find the corresponding RGB in the original picture

Finally we display the result

Concatenation before wrapping

Concatenation after wrapping

Concatenation before wrapping

Concatenation after wrapping