EN2550 Assignment 2 on Fitting and Alignment

Chart, scatter chart

Description automatically generated

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**Chart

Description automatically generated**Graphical user interface, application, Word

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Description automatically generated**(01)**

In this question, we selected three randomly selected points(s = 3) to draw the circle. The threshold value(t) is kept at 1.96 to achieve a 95% probability of getting all inliers. There are 100 data points in this graph. Out of them, 50 need to be inliers the other 50 need to be the outlier. Therefore, the consensus set size has been kept at 50 (d = 50) for accurate circle estimation. The number of samples (N) keep at 35 to have a probability of 99% of having at least one outlier random sample. (According to the equation of determining the number of iterations N)

**(02)**

**Graphical user interface, text, application, email

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A picture containing diagram

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In this question, we need to superimpose Merton college III with the British flag. At first, we need to set the coordinates of four points on the Merton college image. Then map the flag on the Merton college selected points by computing homography. Then wrap the flag image and blend it on the Merton college III architectural image using the cv.wrapPerspective built-in function in OpenCV.

**(03)**

Graphical user interface, text, application

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Graphical user interface, text, application, email

Description automatically generatedA picture containing text, graffiti, lined, rack

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A picture containing application

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A picture containing text

Description automatically generatedA picture containing text, graffiti

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In This question part (a), We draw the features in image 01 and image 05. Then features are mapped using SIFT function and Flann-based matcher. In part (b), We compute the homography using the RANSAC algorithm to avoid perspective differences between 2 images and get better sift feature matches. Then the transformation is carried by the computed homography which is almost the same as the actual homography. Then in part (c), we stitched the transformed image 01 onto Image 05 using the cv.warpPerspective built-in function in OpenCV.

GitHub - <https://github.com/wanshika99/Assignment-02.git>