

Project 2

Image stitching

Given task

Given a set of photos, stitch them into a panoramic image.

Approach towards the given task

Finding key-points in the input image:

- We used OpenCV SIFT module.
- We used SIFT to get the key-points and the descriptors for the corresponding key-points to define pixels of interest for the input image.
- We limit the key-points taken for the required task.
- SIFT uses DoG to get key points. The unwanted key points are discarded by thresholding. Each key point has an orientation to make it scale invariant. An orientation histogram with 36 bins covering 360 degrees is created.

Finding the best matching key-points in different input images:

- We do this by calculating euclidean/hamming distances among the two set of key-points from the respective input images. We then compare and find the most similar pairs of key-points from the two input images.
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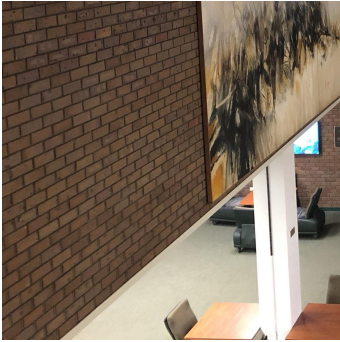
Thresholding:

- We threshold to filter the pairs to use for the stitching of the images.

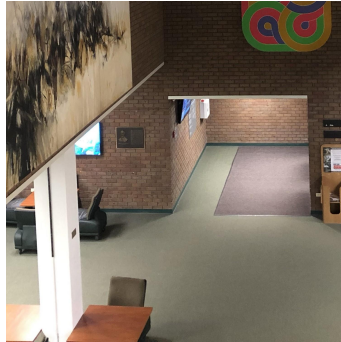
Stitching:

- Using the final pairs of key-points, we combine the two images by performing the required translations to get the panoramic image(combined image).

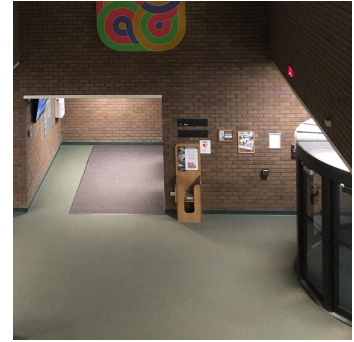
Input Images



Input 1

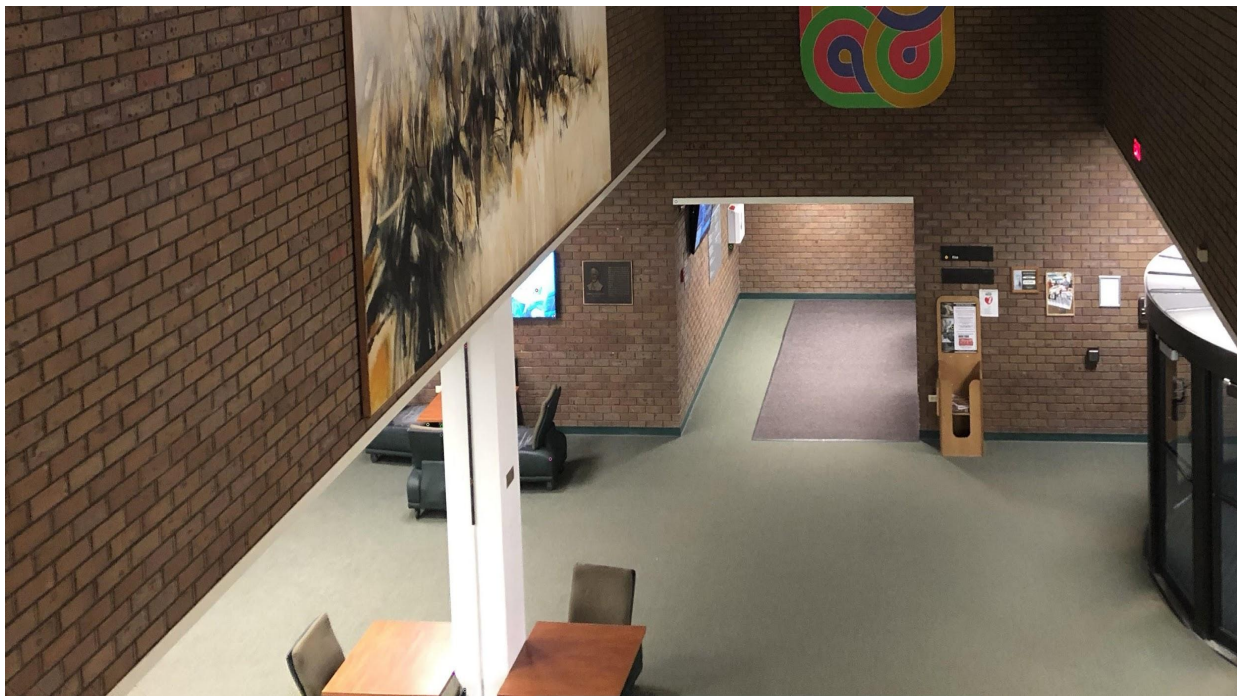


Input 2



Input 3

Result



Thank you

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