ASSIGNMENT-4

Stereo Image Correspondences using Fundamental Matrix

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Epipolar geometry implementation in python to get a fundamental matrix and obtain a patched image of one of the stereo images' pairs from the other.

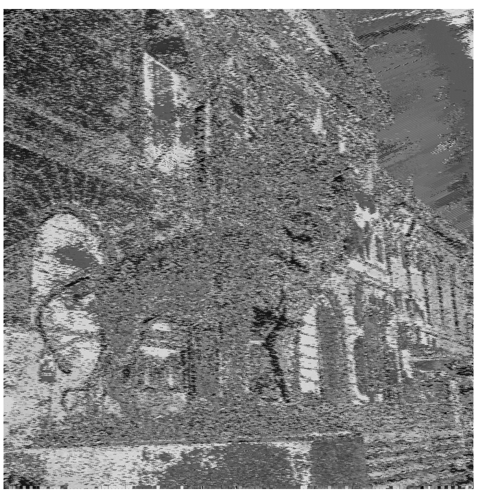
Steps:

1. Get the key points and the description vectors using SIFT and find the pairs of matching points in the stereo pair.
2. Using the RANSAC algorithm, find the fundamental matrix using 8 random pairs of points and continue iteratively, finalizing on the best fit (most inliers).
3. Find the epipolar lines for the source image from the reference image.
4. Search the patches corresponding to each patch of a point of the reference image in the source image by traversing the line in pixel steps along the respective epipolar slope and return the closest one.
5. Patch a blank image with the patches taken from the source image and of size of the reference image.

Here’s a sample from the implementation;

Left **Right**

The patched image using the source(right); [GRAYSCALE implementation]



References:

1. https://www.cs.unc.edu/~blloyd/comp290-089/fmatrix/