The awesome IEEE-style report for CMSC733 Project 1!

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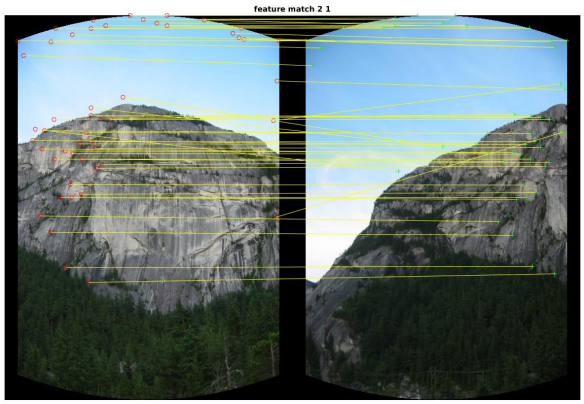
This is a report for CMSC733 class Project 1. Most of the implementation is done as described in project pdf. Here you can find the description of image stitching algorithm and some cool pictures!



I. Introduction

Cylindrical projection, ANMS, feature descriptors, feature matching and RANSAC are impemented exactly as described in the project specification. The best results on the given datasets were achieved with focal length of 500 and 1000. All test datasets were properly stitched (even the 9-image one!). Sample outputs of ANMS and RANSAC:

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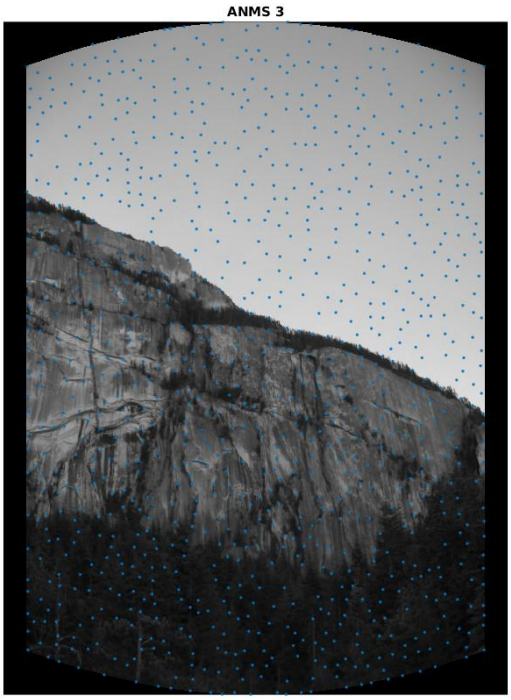


A. Blending!

To stitch two images seamlessly, they are basically 'blurred' into each other. First, the boundary between images is found. A 20-pixel wide stripe is generated from the boundary and the outer edge of the stripe is blurred with gaussian. The stripe (which is basically a mask) is multiplied with the second image and added to the first one, effectively extending the first image with a mask-blurred 20-pixel stripe of the second image. After that, the resulting extended image is overlayed at the top of the second image.

B. Results

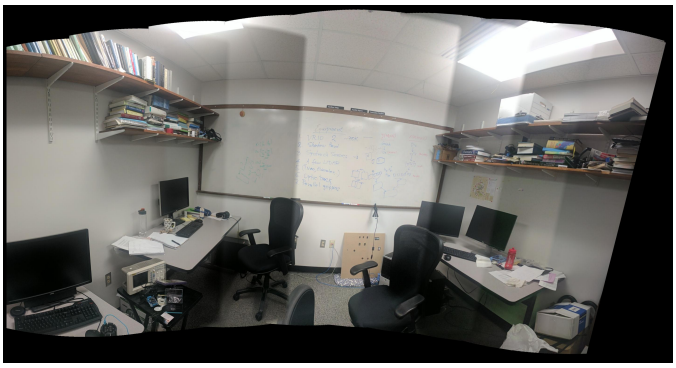
Here is a number of stitched panoramas; consult 'Images' folder to see all of them. Sometimes stitching is done with errors due to poor homography estimation, rerunning RANSAC ususllay helps to fix the issue.

Set #2:

Test Set 4:

Test Set 3:

One of the custom sets:



Test Set 2: