Panorama Stitching

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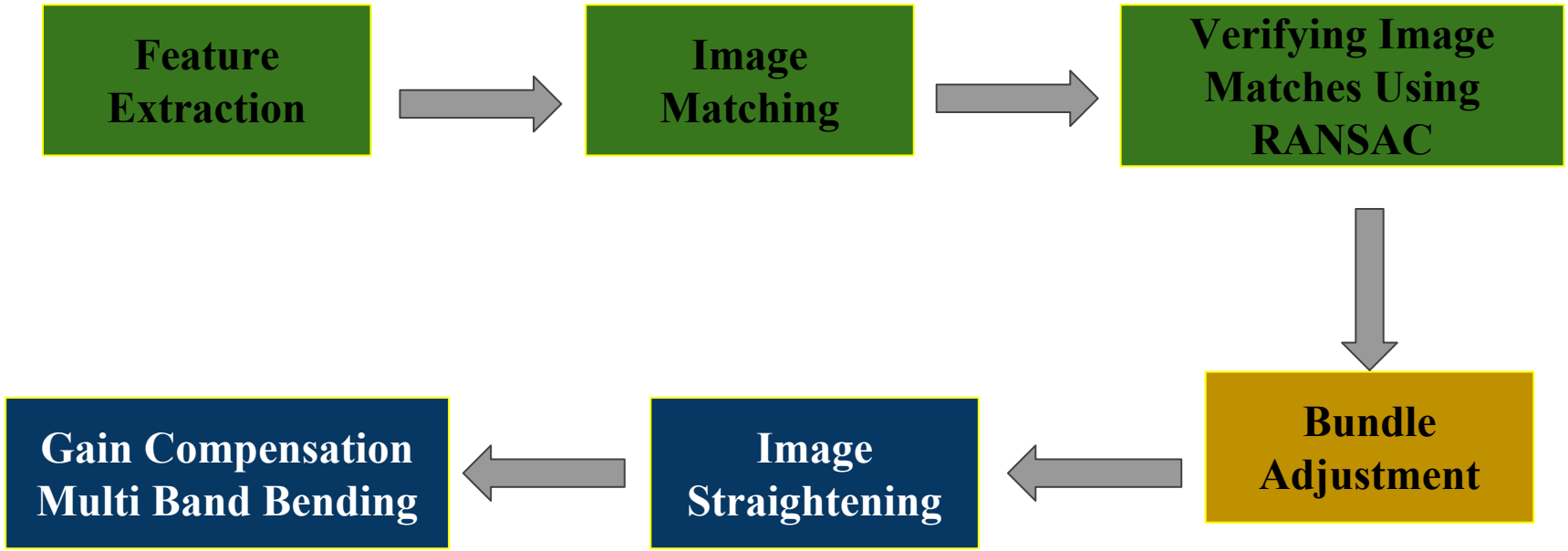
Objective

Given multiple images of different scenes reconstruct all possible panoramic images. The input images can be unordered, may vary in orientation, scale or illumination.

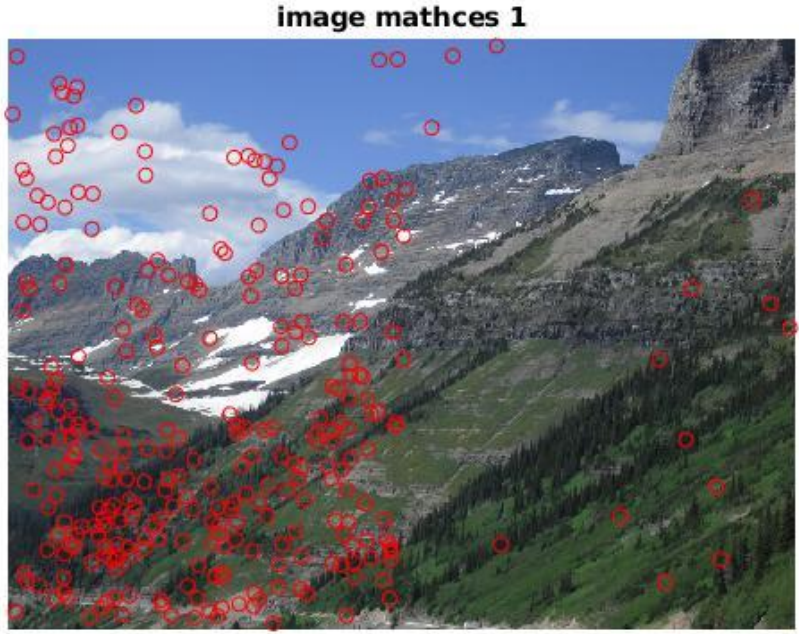
It also takes care of the images which are not a part of the scene during the reconstruction process.

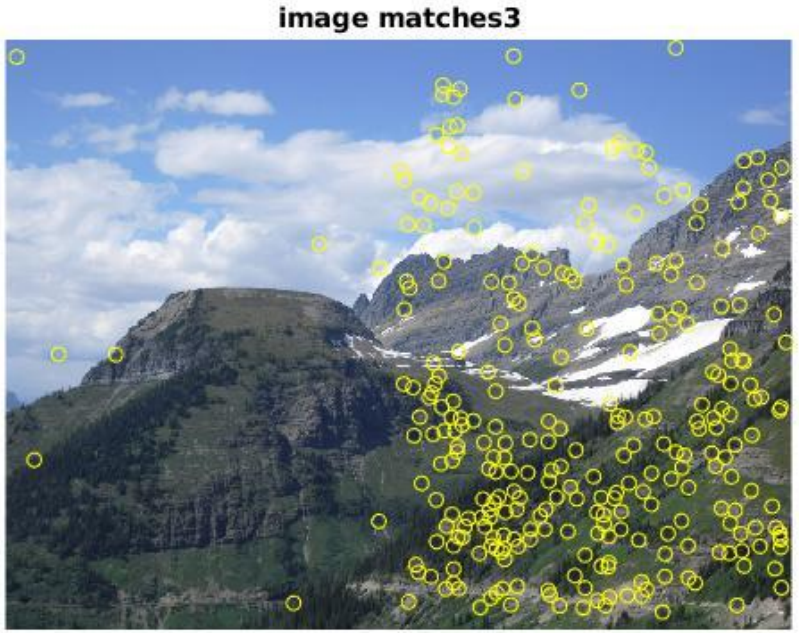
Abstract


Feature Extraction
Image Matching
Verifying Image Matches Using RANSAC
Bundle Adjustment
Image Straightening
Gain Compensation Multi Band Bending
- Completed
- Ongoing
-Planned

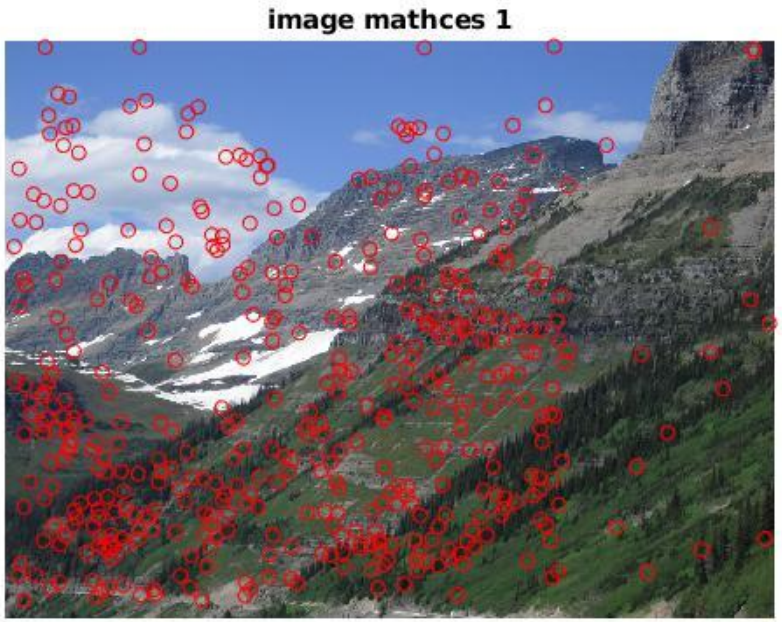
Feature Extraction and Image Matching

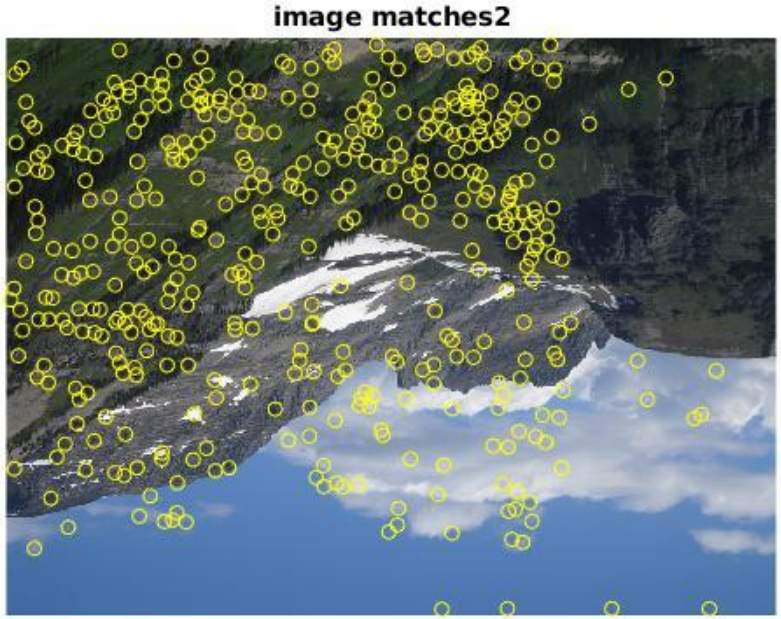
(Using SIFT Descriptor)



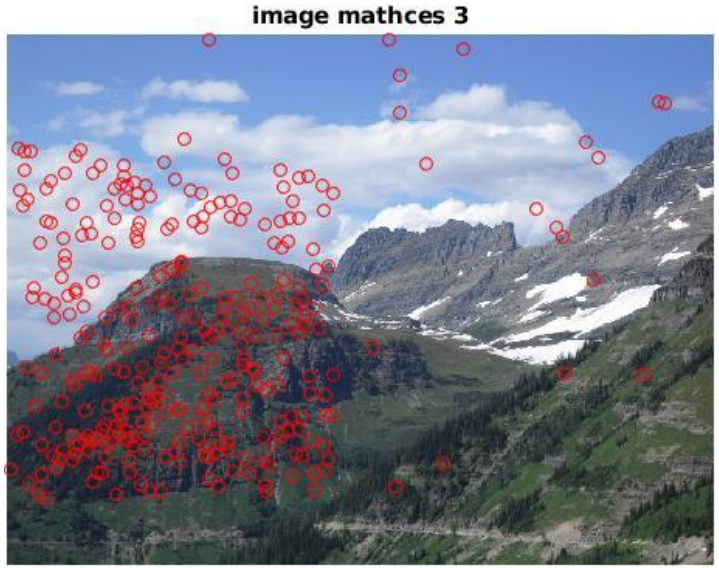


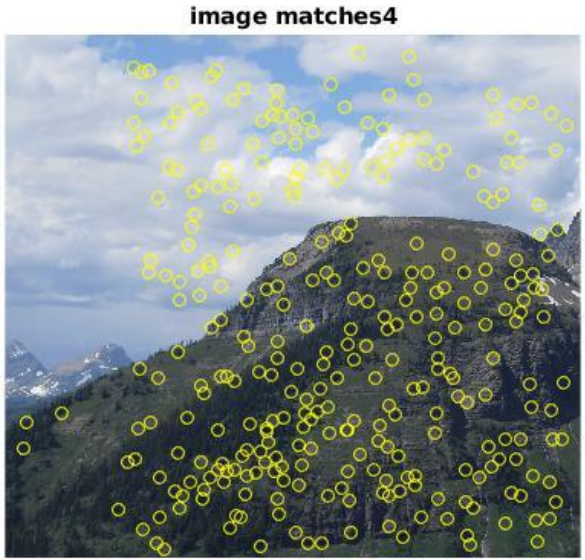
Using SIFT Descriptors



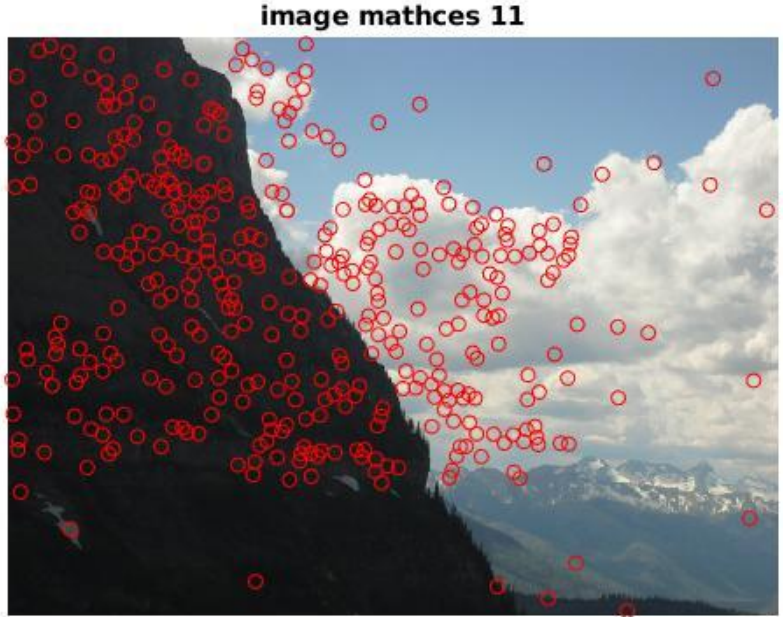


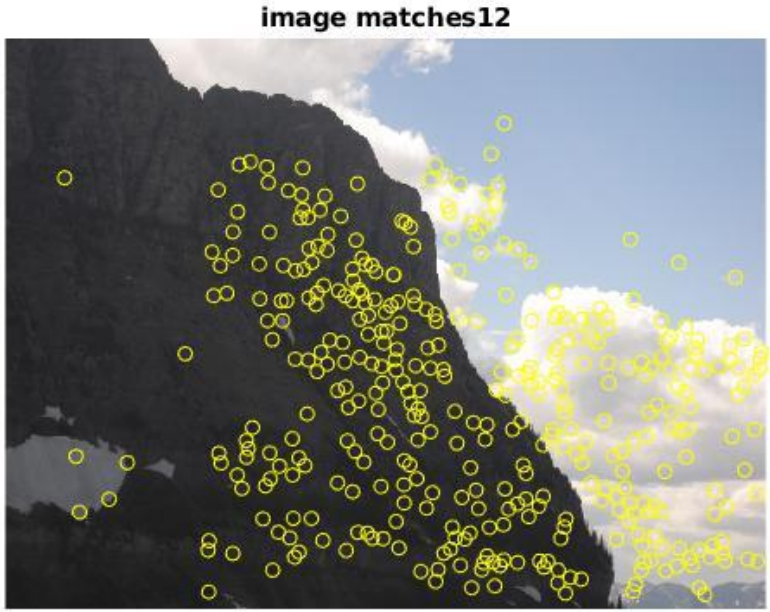
SIFT Descriptors - Rotation Invariance





SIFT Descriptors - Scale Invariance

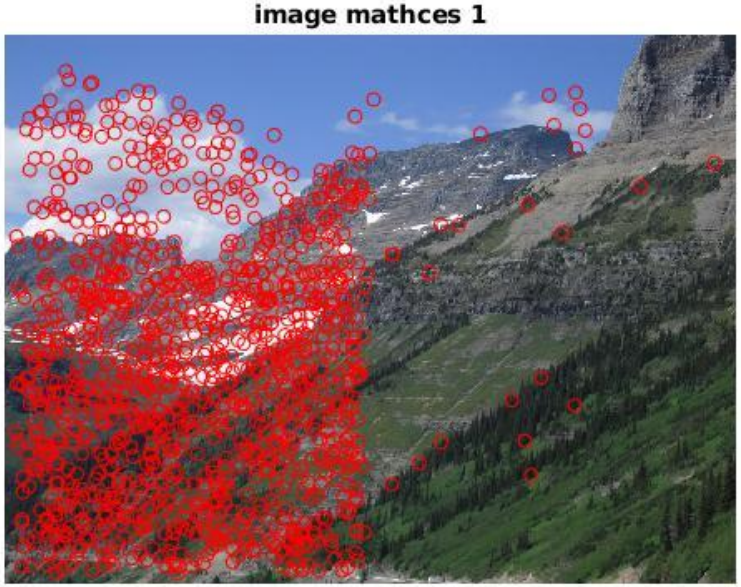


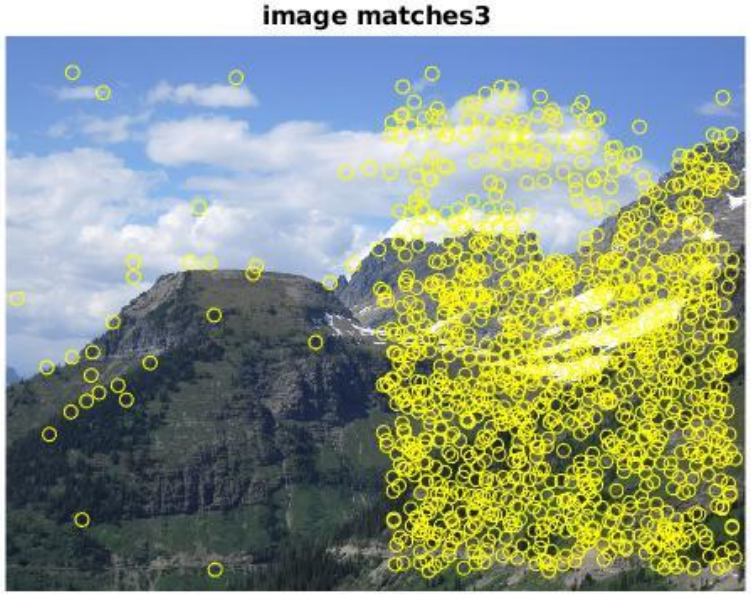


SIFT Descriptors - Illumination Invariance

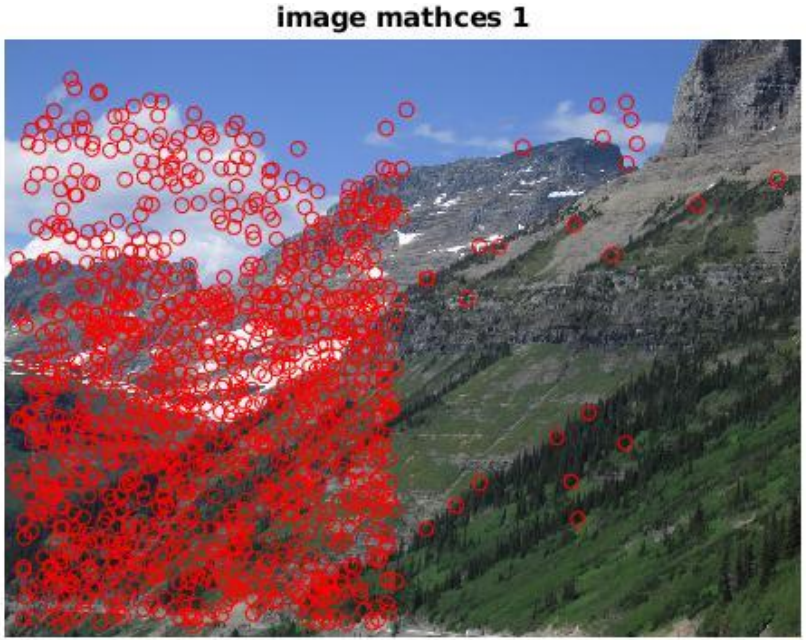
Feature Extraction and Image Matching

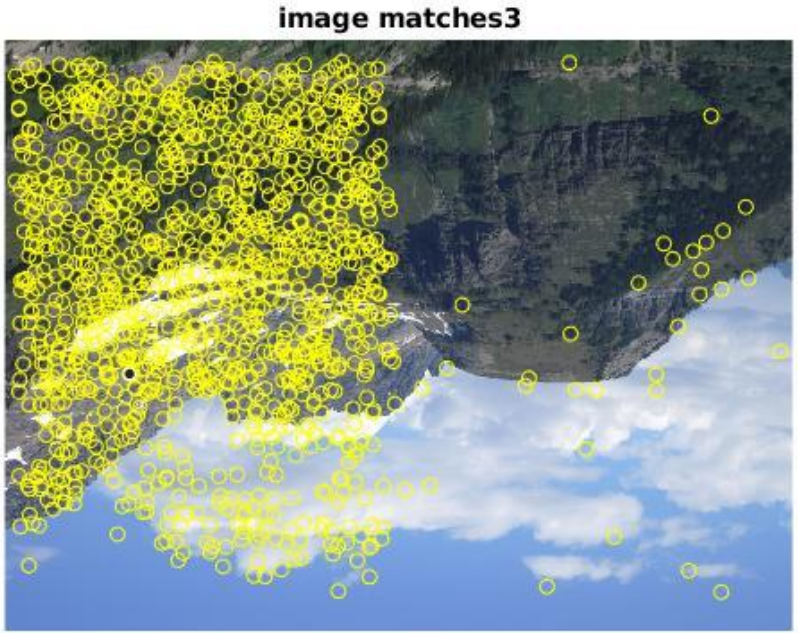
(Using SURF Descriptor)



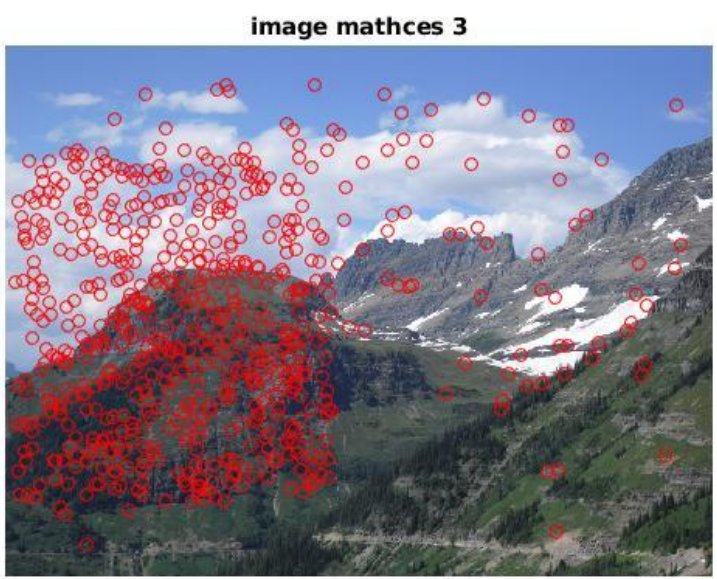


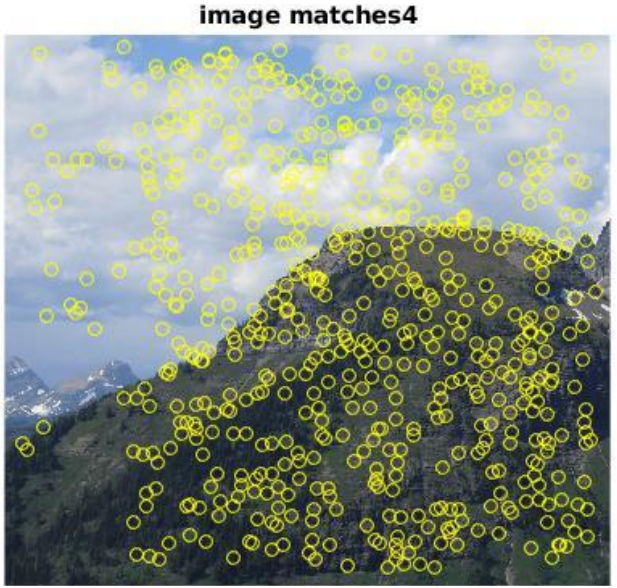
SURF Descriptors



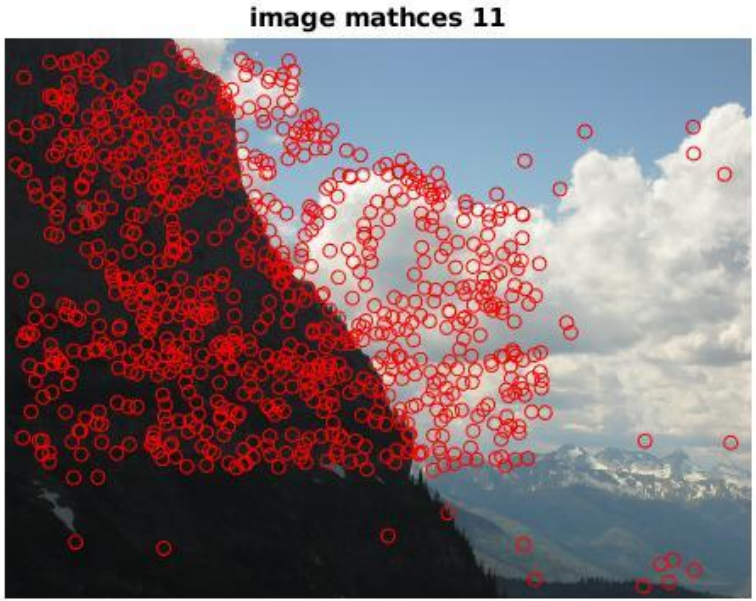


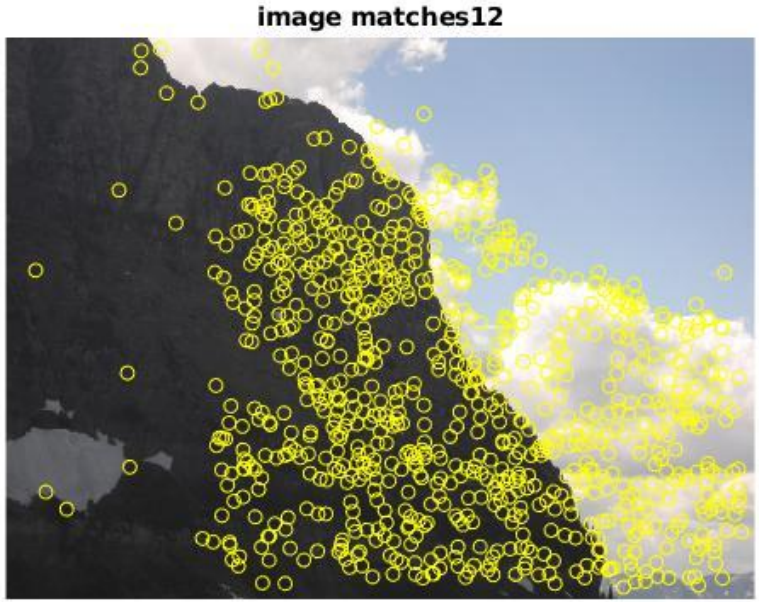
SURF Descriptors - Rotation Invariance





SURF Descriptors - Scale Invariance





SURF Descriptors - Illumination Invariance

Finding Inliers using RANSAC

image mathces 1

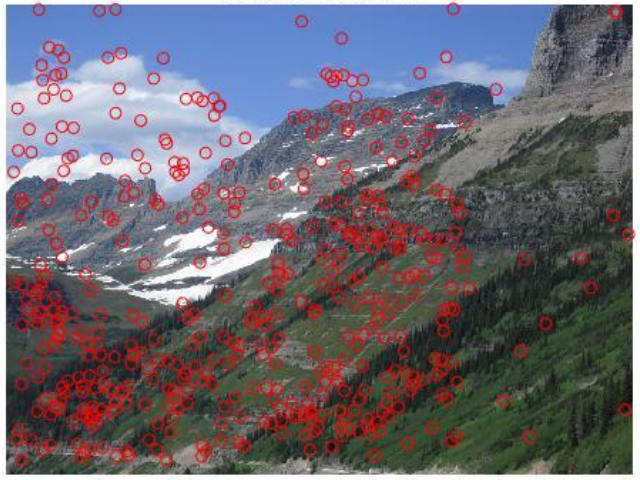


image matches2

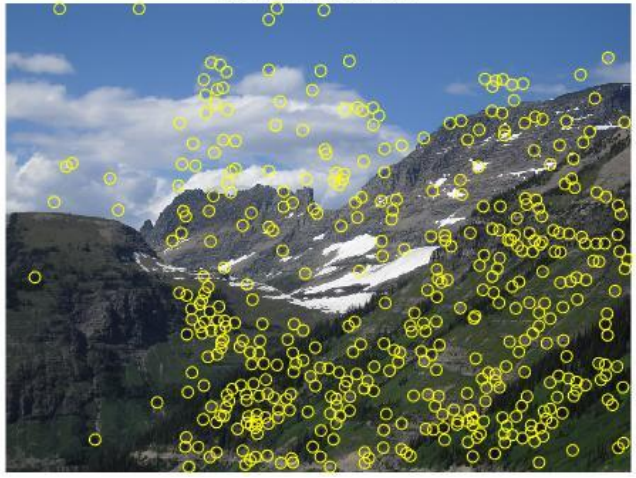
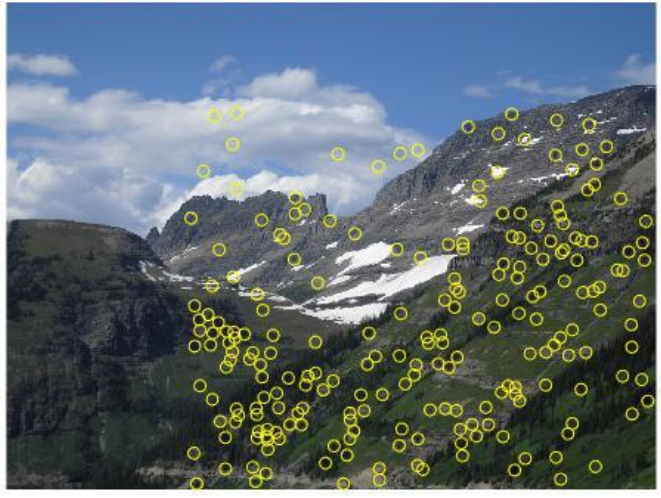


image mathces after RANSAC 1

image matches after RANSAC 2



Future Milestones

Currently we are working on Bundle Adjustment and Image Stitching.

Next we have Automatic Image Straightening, followed by Gain Compensation and Multi Band Blending. We are expected to be on schedule.

THANK YOU