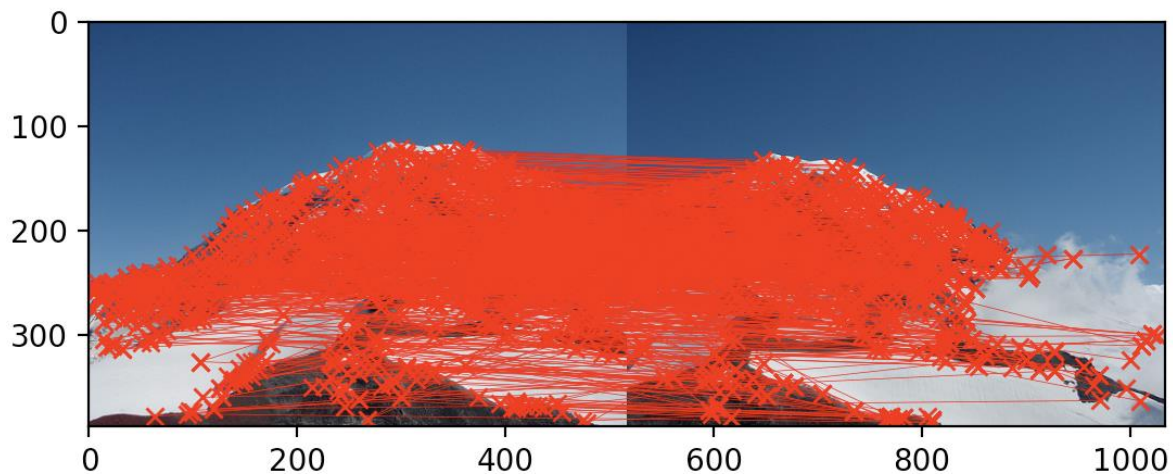


**Computer Vision 4310**  
**Assignment 2**  
**Image Stitching with SIFT and RANSAC**

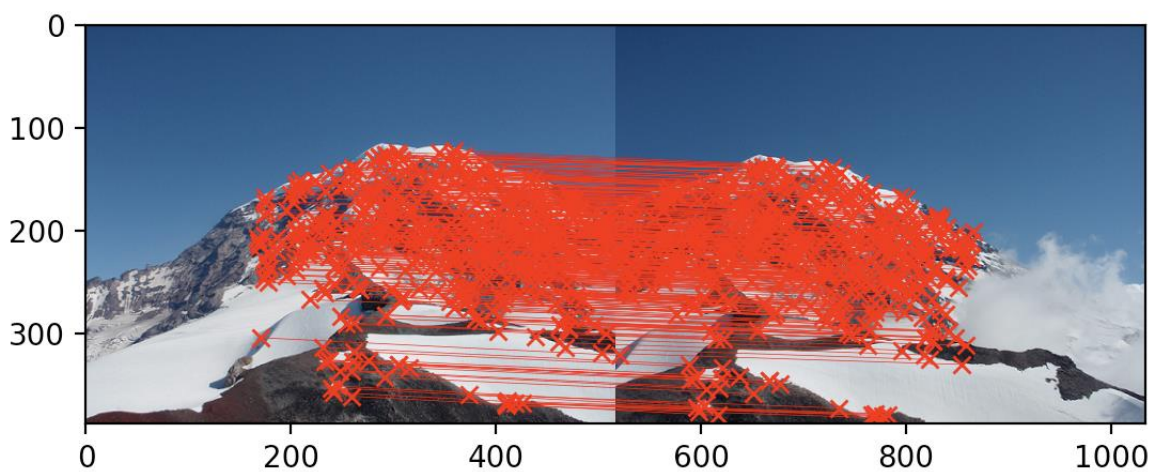
1. Image Stitching for **Rainier**

Image names in for input Rainier1.png and Rainier2.png

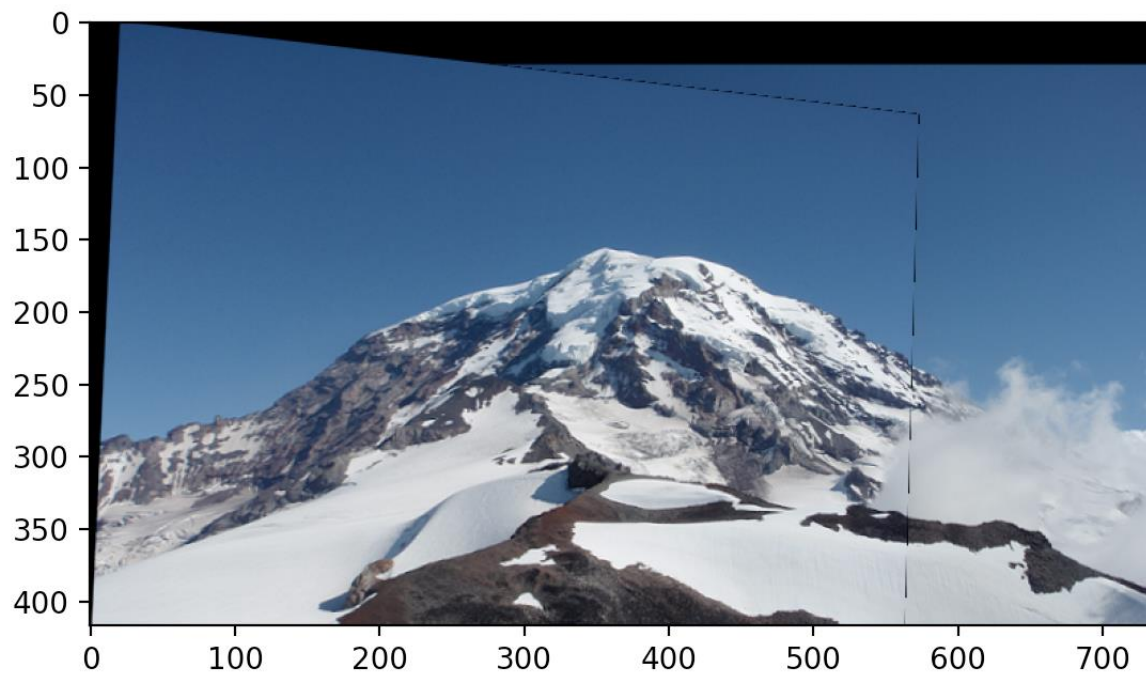
All key point matches between 2 images displayed below. This test run had 1025 key point matches.



On this, I used RANSAC to filter out all the outliers. For this, the number of iterations was 2000, with 4 points needed to estimate the model, and at 300 key point matches needed to estimate the 2 images. This resulted in 432 key point matches.



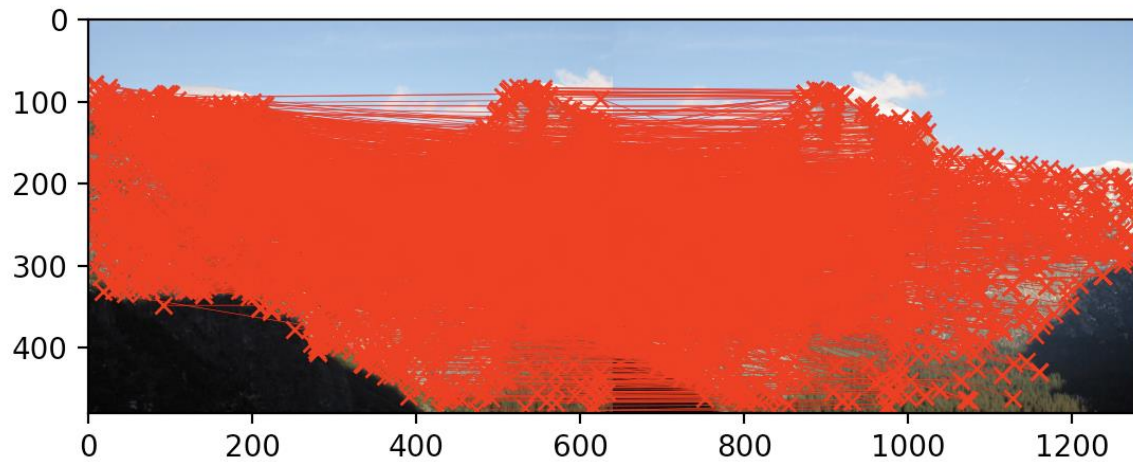
Lastly, using these inliers above, below is the image formed using image stitching.



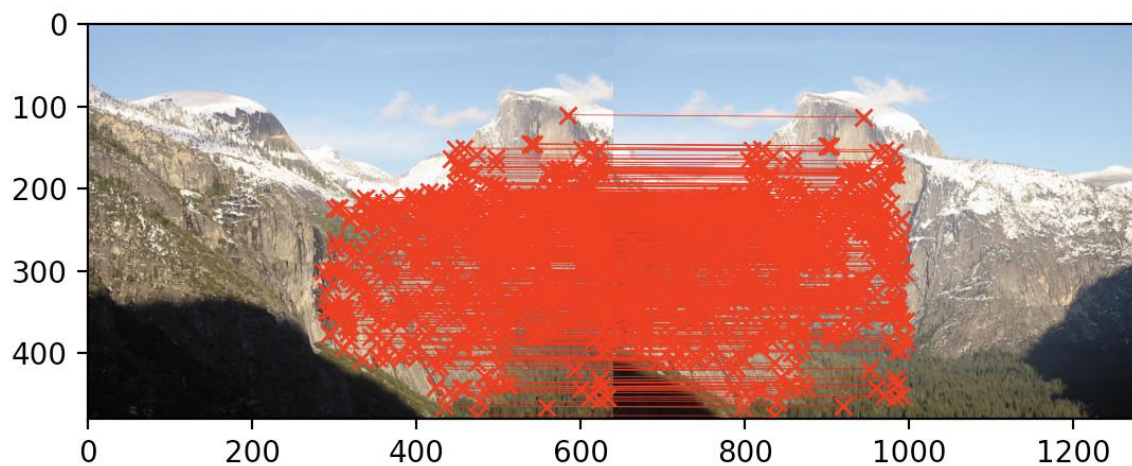
## 2. Image Stitching for **Yosemite**.

Image names for input yosemite1.jpg, yosemite2.jpg, yosemite3.jpg

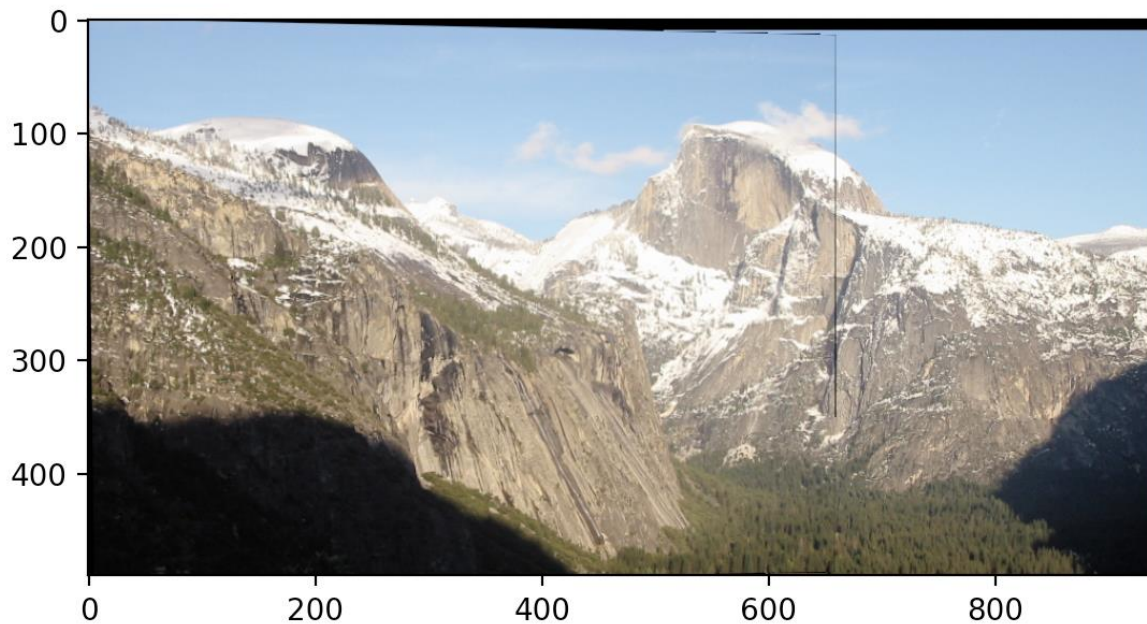
All key point matches between 2 images displayed below. This test run had 2434 key point matches.



On this, I used RANSAC to filter out all the outliers. For this, the number of iterations was 2000, with 4 points needed to estimate the model, and at 300 key point matches needed to estimate the 2 images. This resulted in 806 key point matches.

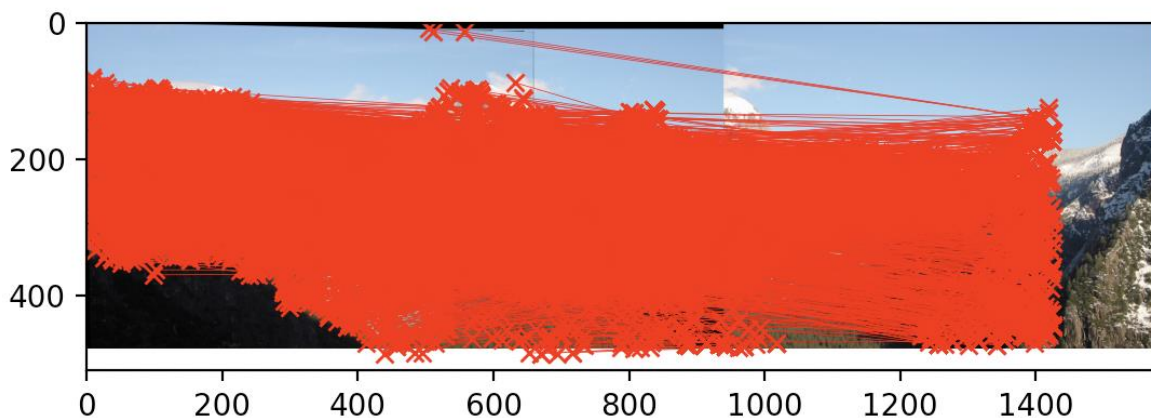


Stitching the 2 images together.



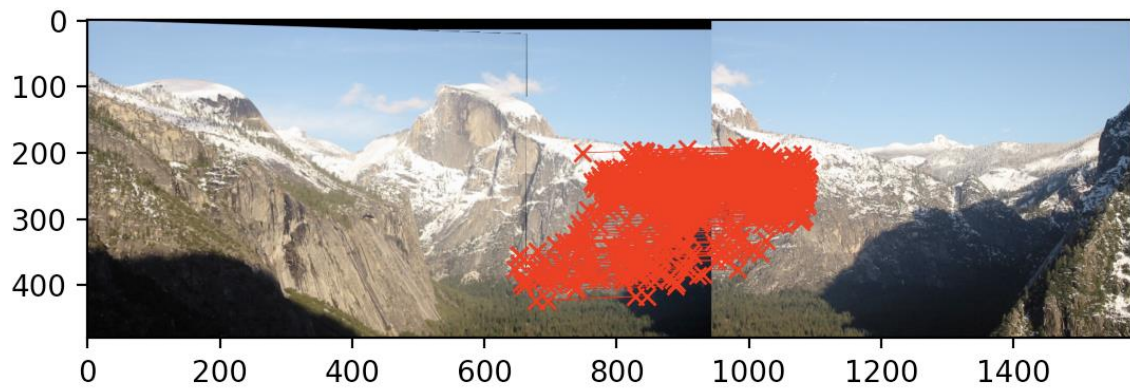
Now, taking the stitched image and the third image. Apply SIFT and key point matching for 2 images. These 2 images produced 4231 key point matches.

Note: In the image below, the size of the first image reduced to the second image for easy concatenation. This is only done to show on the graph and the real images are not affected by this.

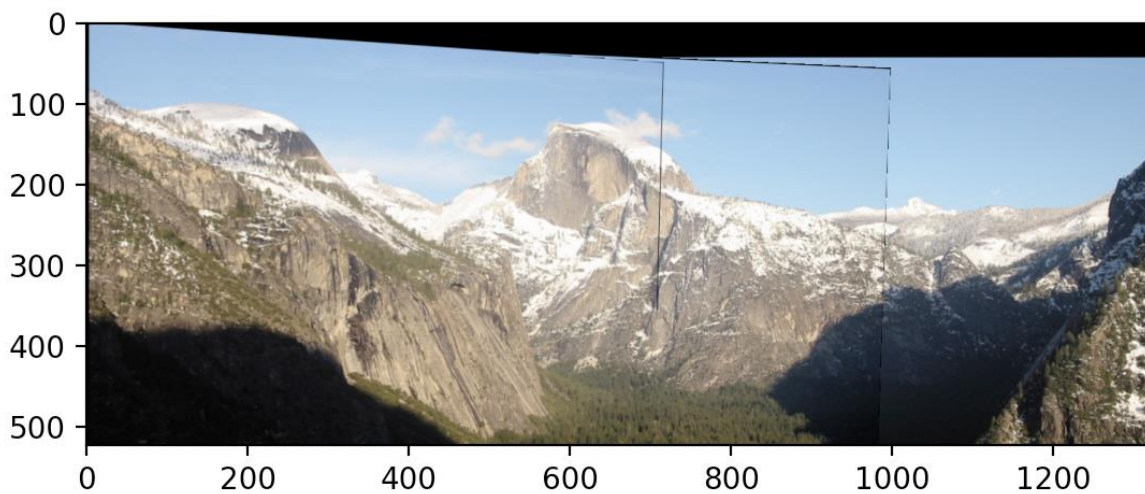


On this, I used RANSAC to filter out all the outliers. For this, the number of iterations was 4231, with 4 points needed to estimate the model, and at 300 key point matches needed to estimate the 2 images. This resulted in 349 key point matches.



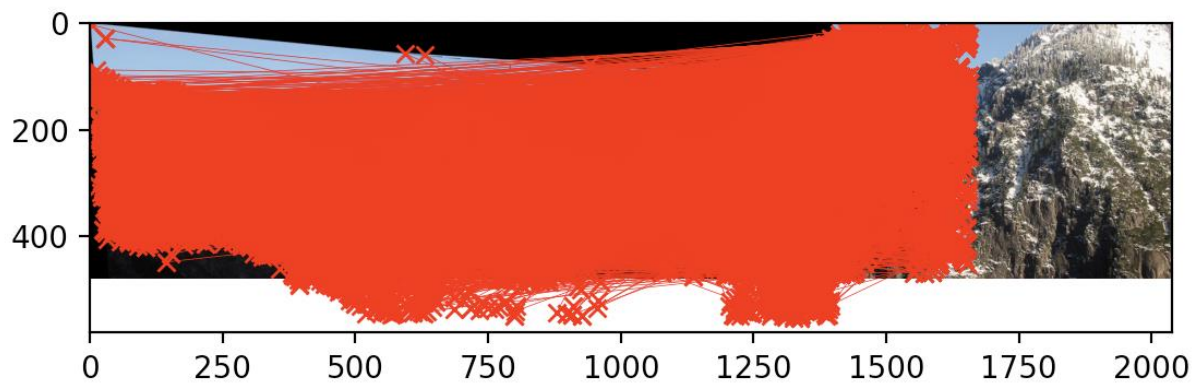


Stitching these 2 images together.

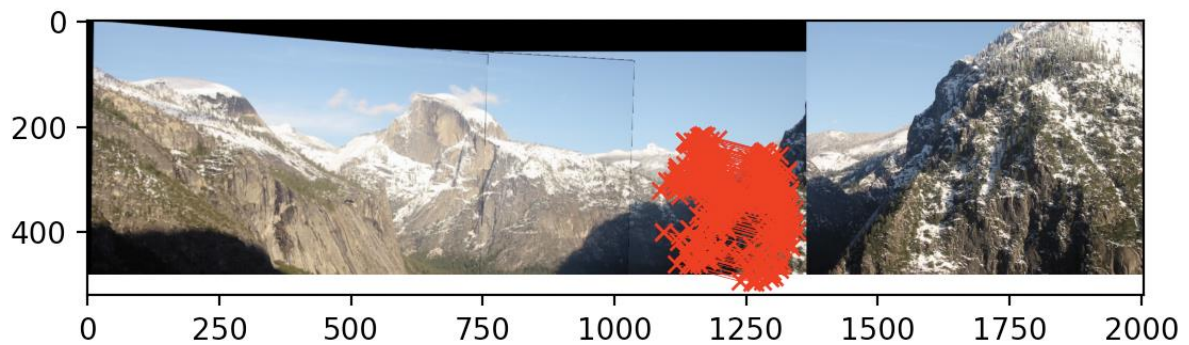


Now, taking the stitched image and the fourth image. Apply SIFT and key point matching for 2 images. These 2 images produced 6707 key point matches.

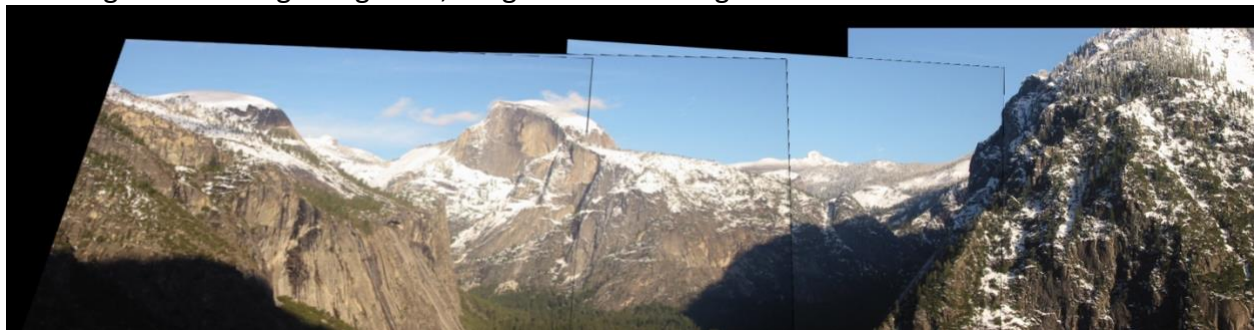
Note: In the image below, the size of the first image reduced to the second image for easy concatenation. This is only done to show on the graph and the real images are not affected by this.



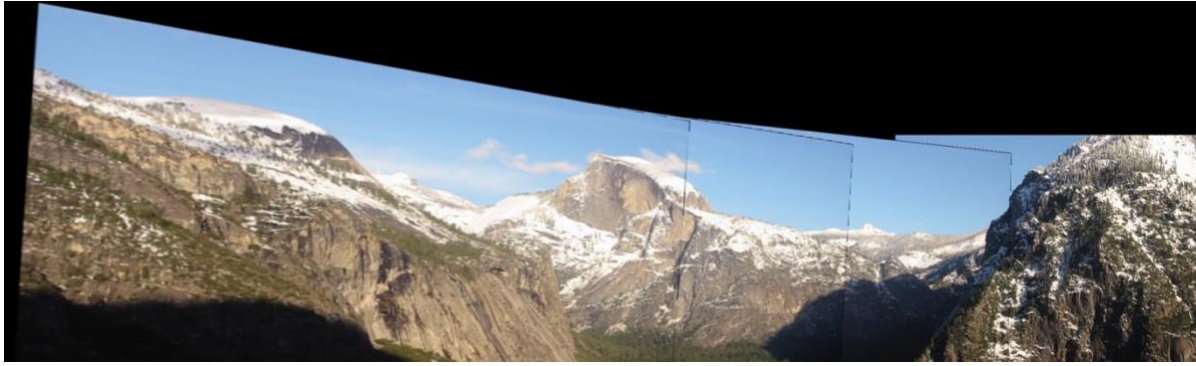
Using RANSAC, we get 6707 iterations, we get the following 201 inliers.



Stitching these 2 images together, we get our final image.



Example of stitched image



Another example of stitched image

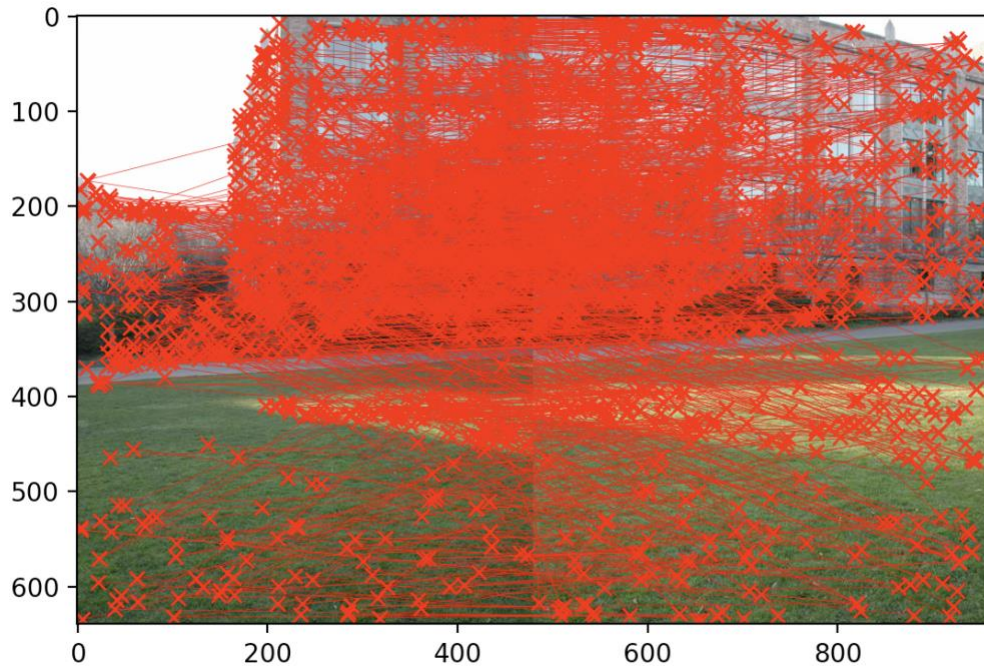


### 3. Image stitching for **college**.

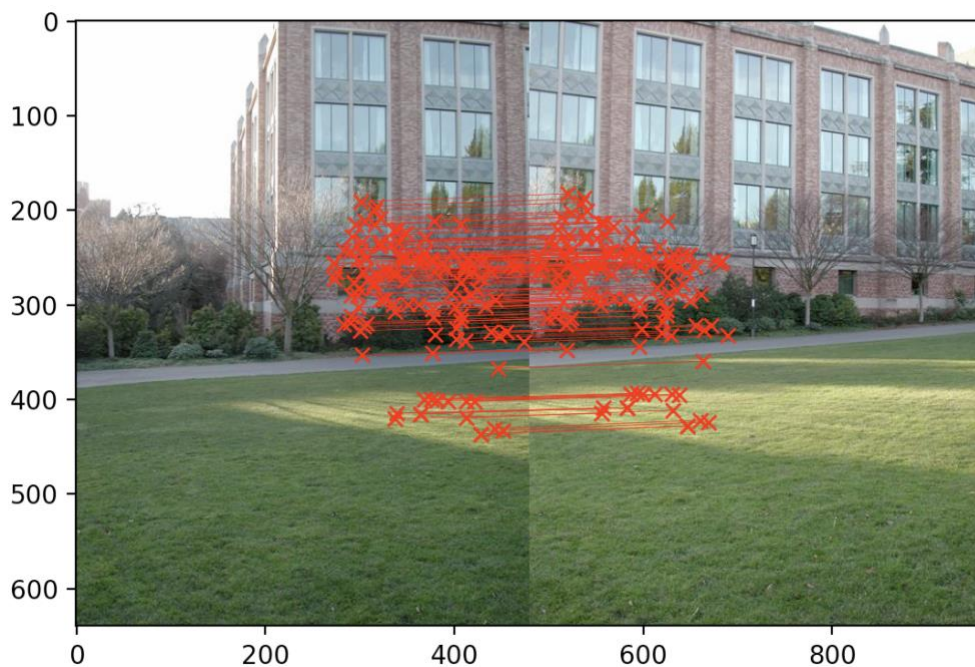
Input images include campus\_000.jpg, campus\_001.jpg

Stitching campus\_000.jpg and campus\_001.jpg

All key point matches between 2 images displayed below. This test run had 1380 key point matches.



Running RANSAC on these matching key points, we get the following 130 inliers.





Stitching these 2 images together, we get the following image.

