

Austin Small
CIS 580 Project 2

Milestone 1:

- Visualization of feature matching after outlier rejection.
- Visualization of epipolar lines.

Image 1:

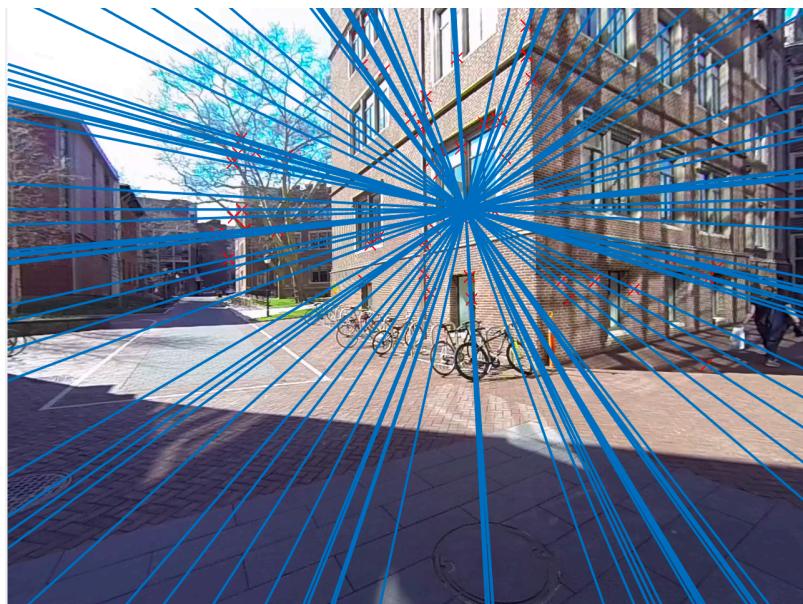
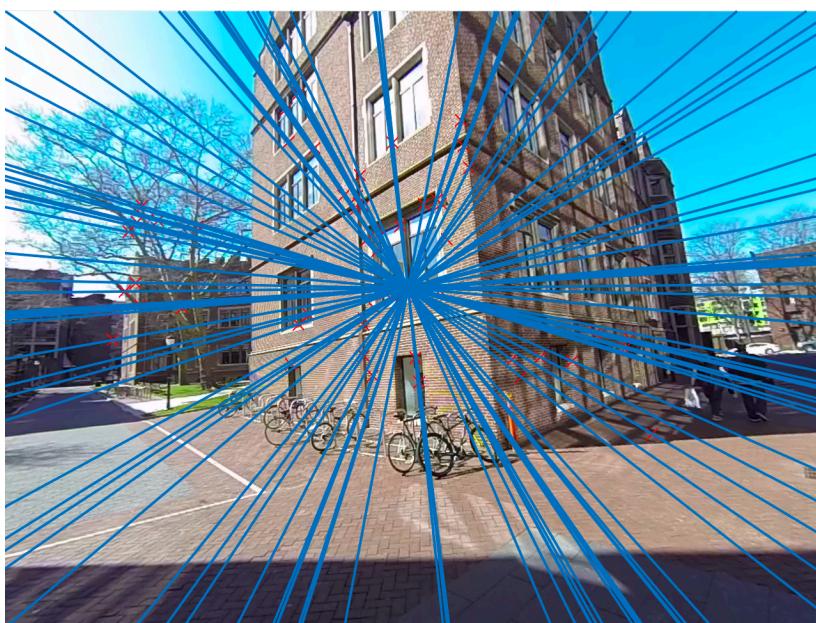


Image 2:

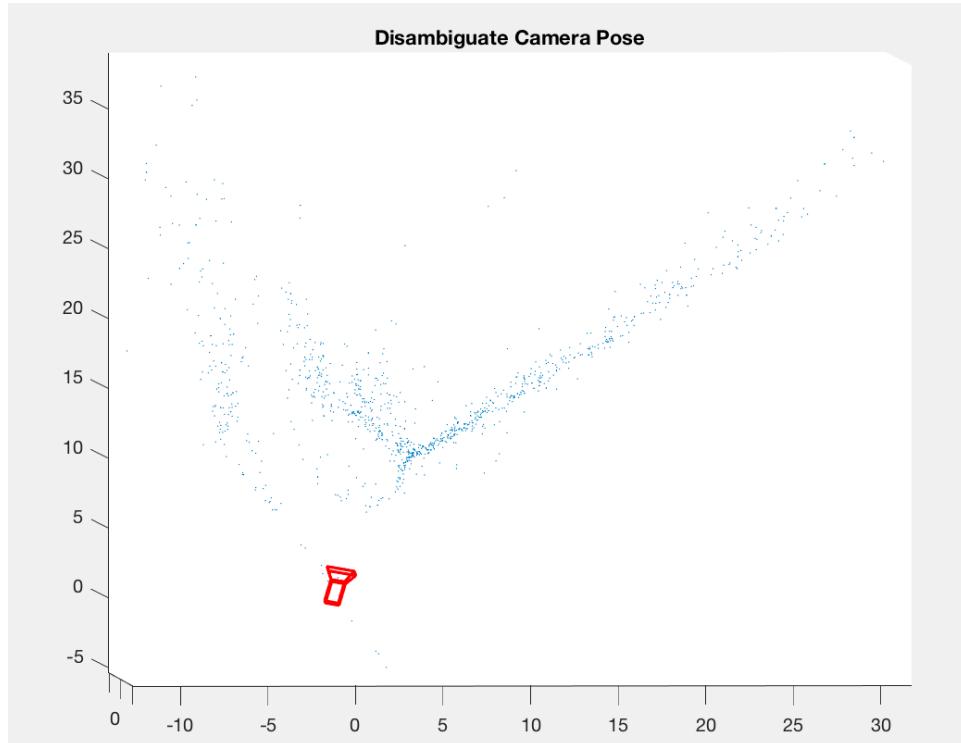


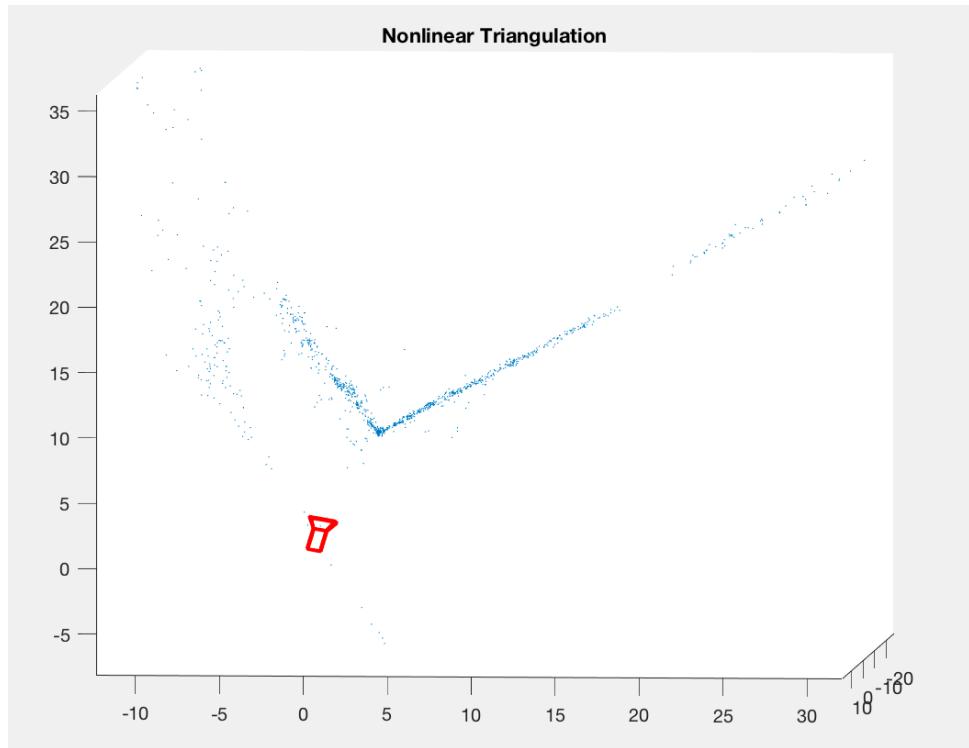
Description:

As can be seen in the above images, my algorithm is correctly identifying corresponding points between images one and two. Note that the epsilon value used in RANSAC is small so that I could demonstrate this milestone with only a few illustrative points. The lines represent epipolar lines which correctly converge at one point in each respective image.

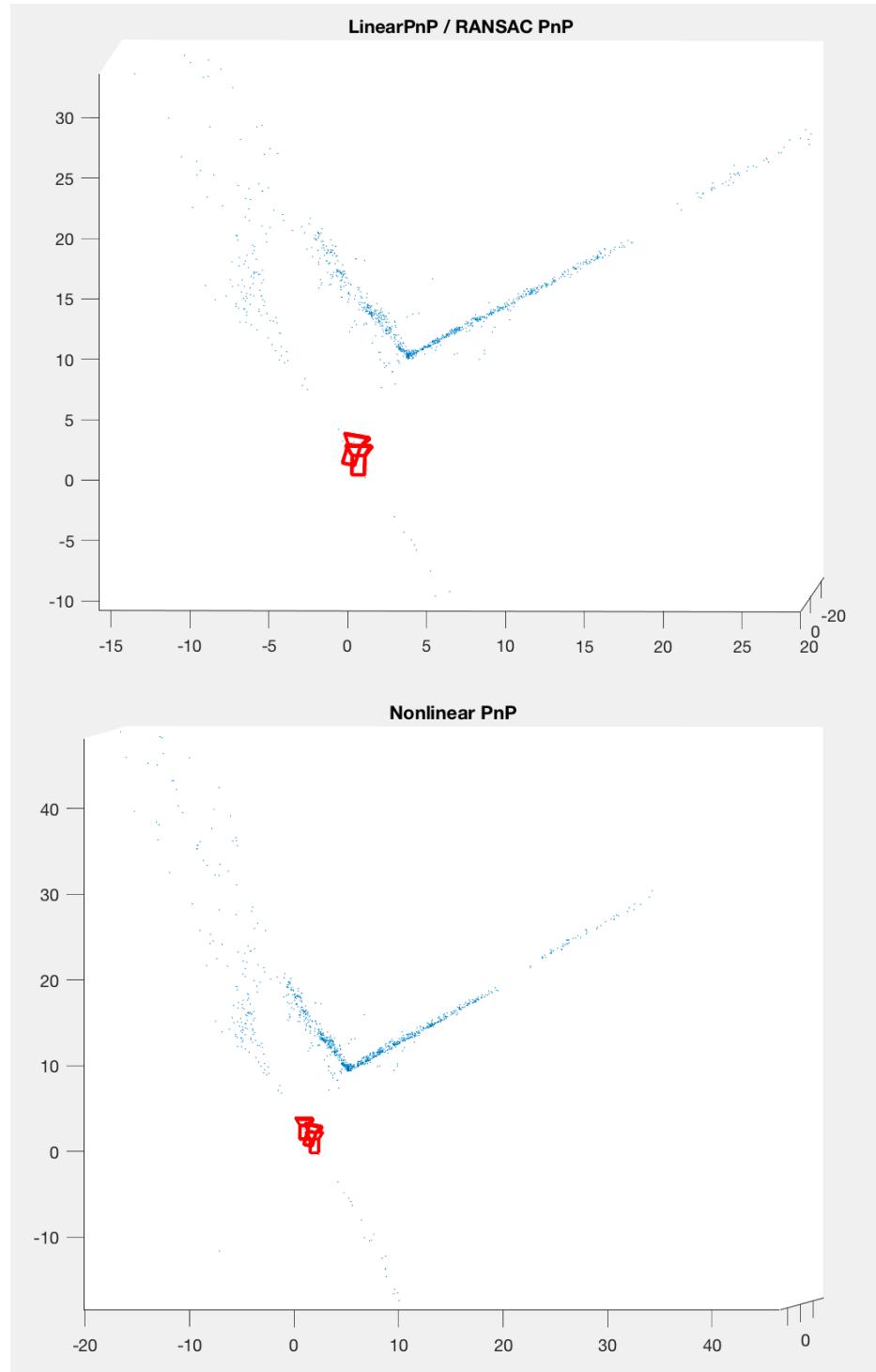
Milestone 2:

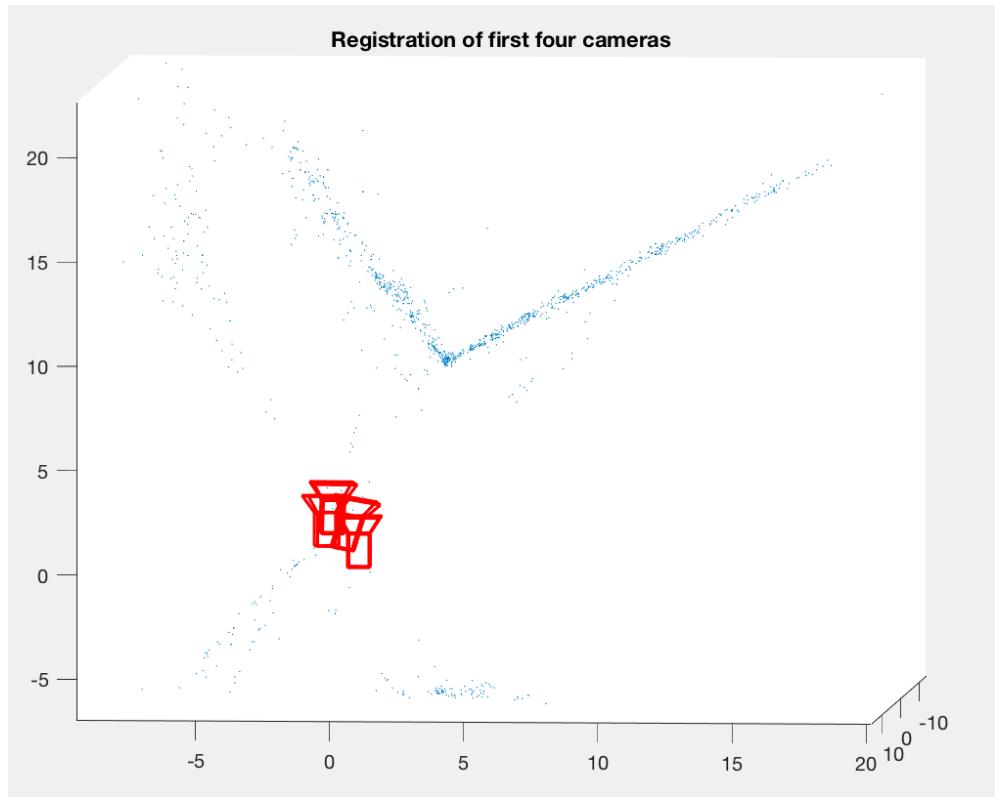
- Visualization of camera relative pose after disambiguation.
- Visualization of triangulation points.





- Visualization of linear PnP, RANSAC PnP and Nonlinear PnP, using the triangulation points from two cameras to register the third one.

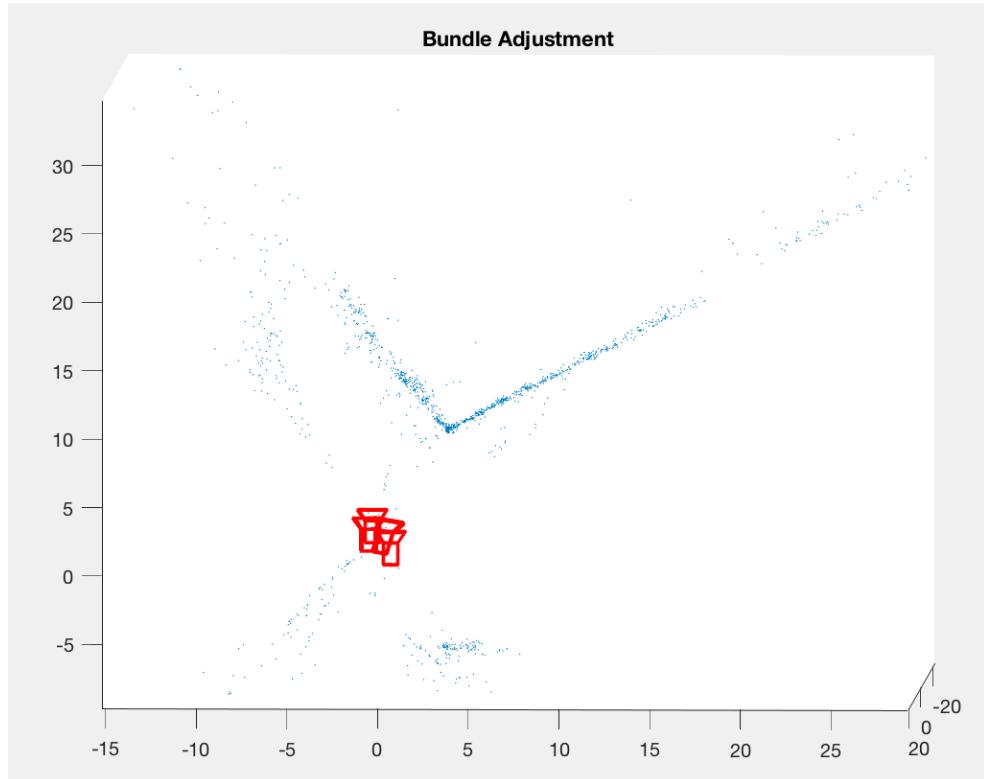


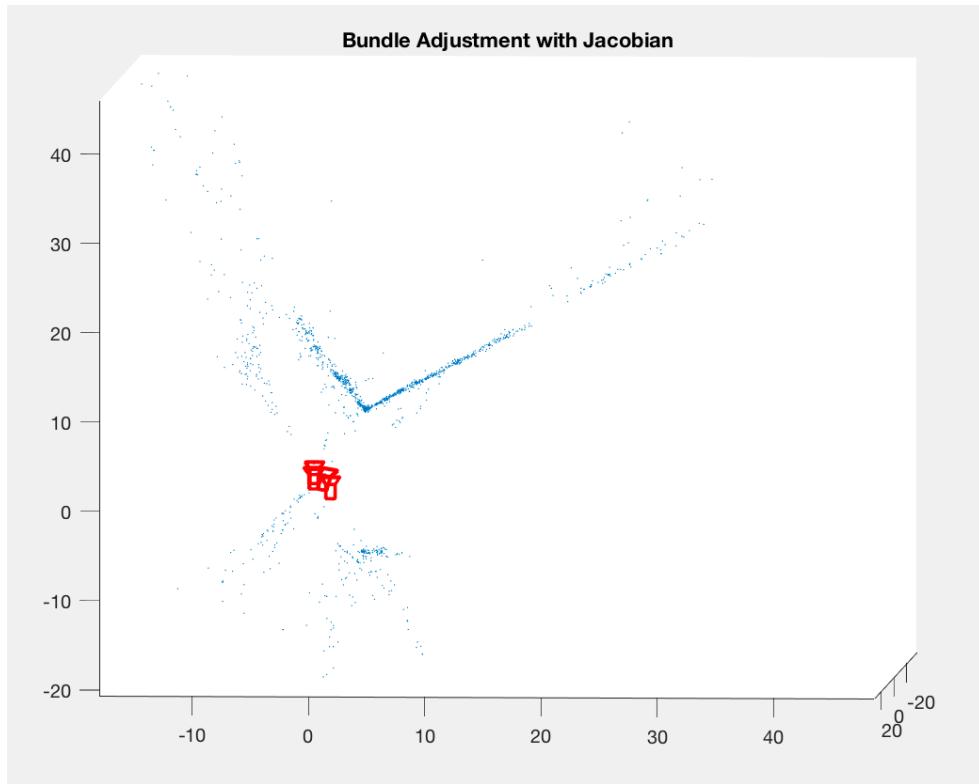


Note: I was able to successfully complete the code for this portion of the assignment. However, I was not able to register the fifth and sixth cameras successfully. This was because my algorithm wasn't detecting inliers between 4/5 and 1/2/3 relating to 3D points that were preregistered. This is most likely due to a low error threshold on the inliers RANSAC algorithm, but I did not get a chance to address this.

Milestone 3:

- Visualization of all camera poses and 3D points.
- Total time used for bindle adjustment with/without using Jacobian.





Runtimes:

BA: 8321 seconds
BA With Jacobian: 2565 seconds