

# CIS 580 – Homework Project

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## Problem 1

In this project, I made some minor changes to the directions. For example, in RANSAC I chose to use 64 corresponding points to estimate the Fundamental Matrix, since that made it more robust being biased to the 8 points I was selecting before. I used 5000 iterations of RANSAC and when I used 8 points, the number of inliers was about 500-600 points out of the 1426 matchings between frame 1 and 2. After using the 64 points the number of inliers is about 1000. The epsilon I used for RANSAC is .1. I noticed that when I restricted the epsilon more, the features on the left side of the building and the tree features were disappearing from RANSAC. Also in DisambiguateCameraPose, I tossed points that had a distance from the camera greater than 300, since those points are badly projected. There aren't enough far features to accurately get the projection matrix to place the far points correctly. One of the features was located about 15000 from the camera. The attached pictures are in the order: plot\_reprojection(frame 1 with features in frame 1), plot\_reprojection(frame 2 with features in frame 2), PlotCamerasAndPoints of camera 1 and camera 2 from above, PlotCamerasAndPoints of camera 1 and camera 2 from the side in the direction parallel to the first camera, 3DPointCloud of all points that are seen from both cameras with far points removed.









