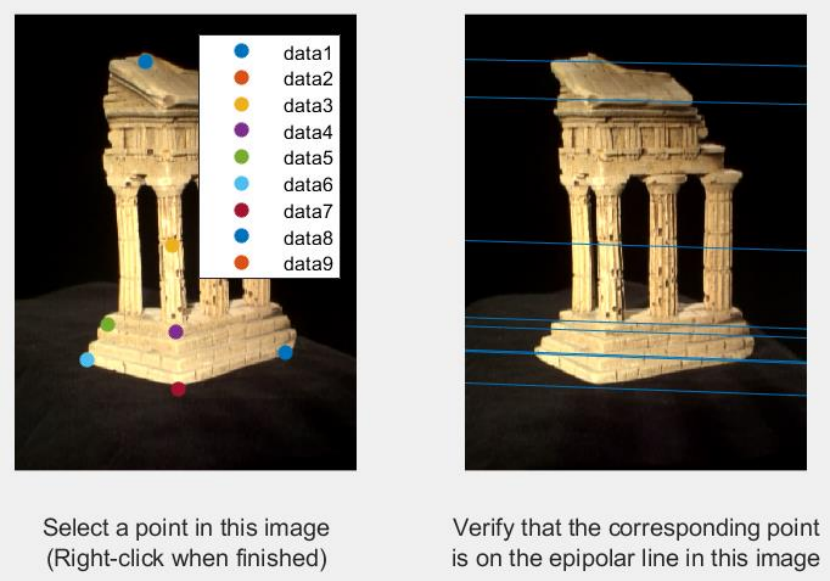
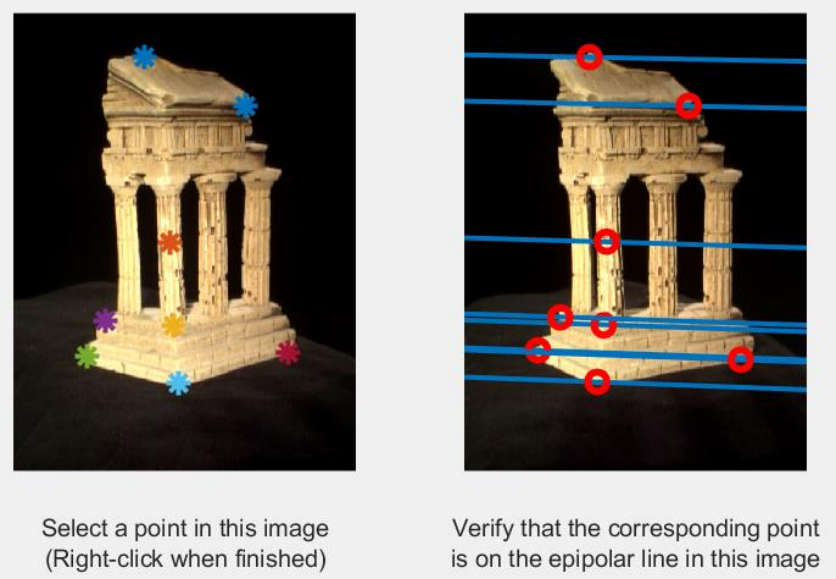
3.1.1:

F = [1.75183168875261e-09, -1.86674315689630e-08, -8.52016381160499e-06;
-6.45671395631849e-08, -4.02137867037848e-10, 0.000495676907212069;
1.66353907424753e-05, -0.000476097927042134, -0.00205693230902430;]



3.1.2:



I used Euclidean distance for similarity metric. This matching algorithm might fail when pictures have repeated patterns, because repeated patterns have similar Euclidean distance. It also might fail when pictures have areas with no pattern but pure color, because points in these areas also have similar Euclidean distance.

3.1.3:

E = [0.00404956244132062, -0.0433080372767750, -0.0191554874996294;
-0.149794366553689, -0.000936326071206588, 0.726416434975663;
0.00186296855297823, -0.735240786278836, -0.000846576656319611;]

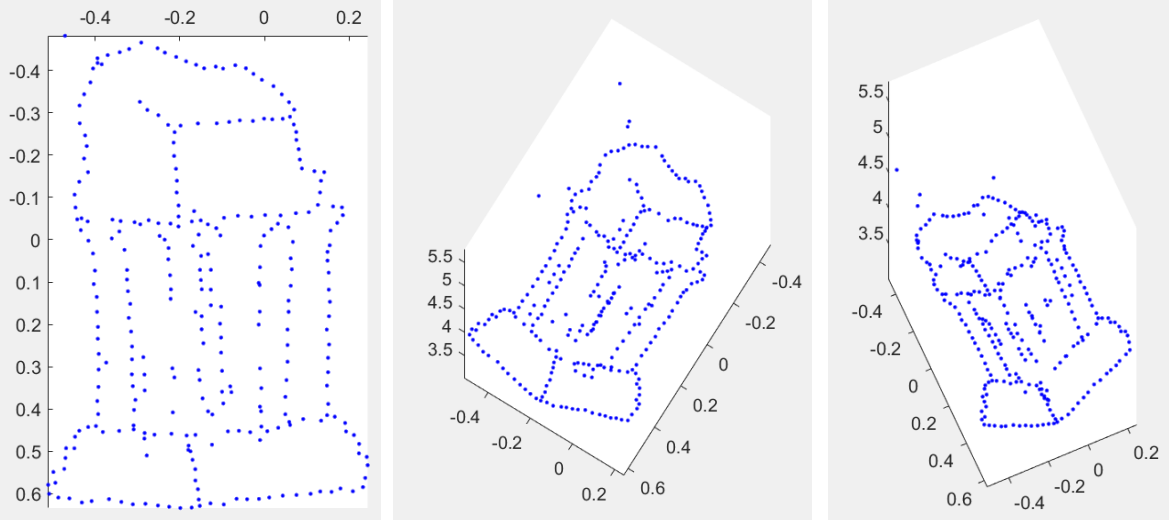
3.1.4:

camera2(E) will give fore candidate extrinsic matrices, I choose the extrinsic matrices with most positive Z, which has most points in front of images.

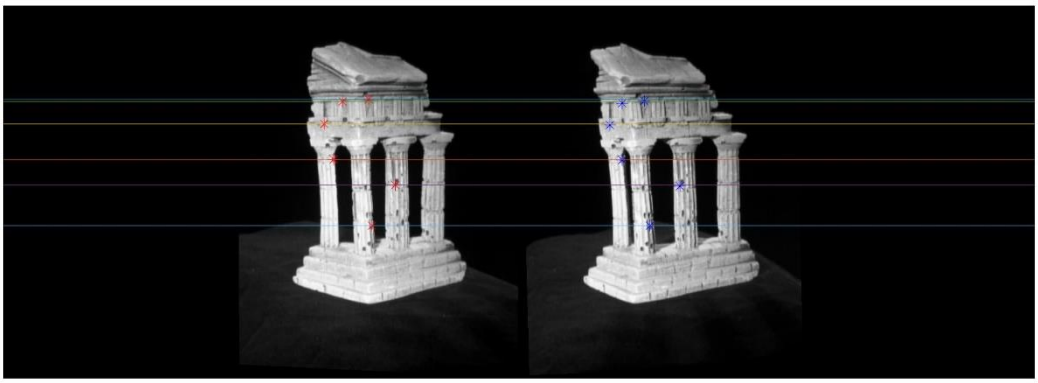
re-projection error using pts1: 0.5611

re-projection error using pts2: 0.5658

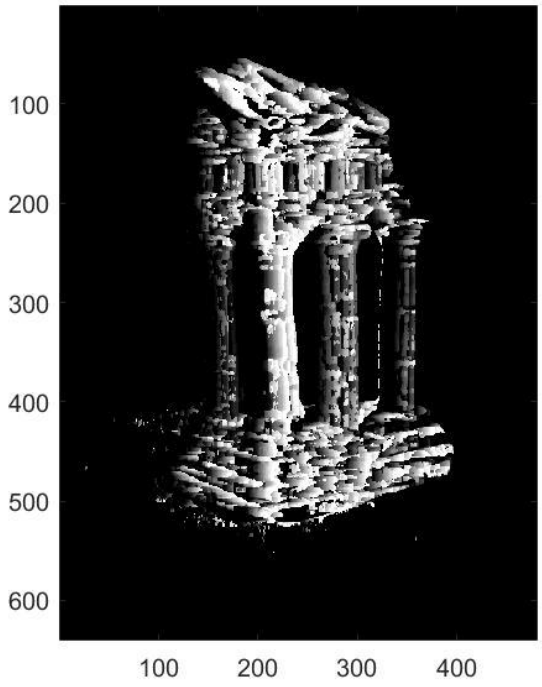
3.1.5:



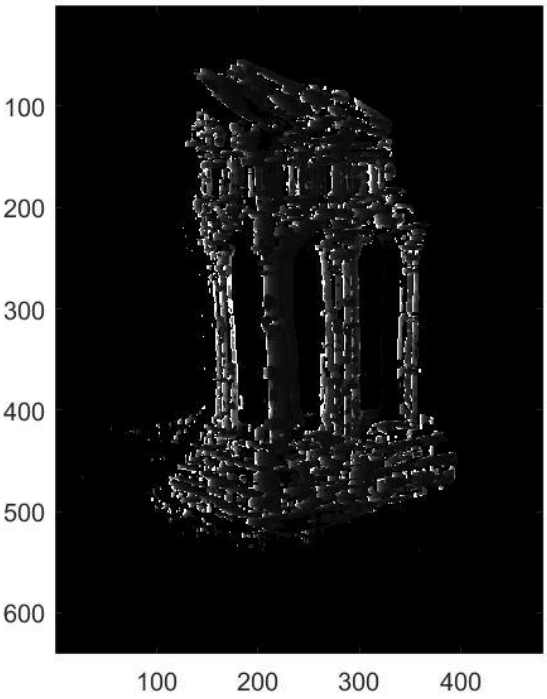
3.2.1:



3.2.2:


100
200
300
400
500
600
100
200
300
400

3.2.3:


100
200
300
400
500
600
100
200
300
400

3.3.1:

Reprojected Error with clean 2D points is 0.0000
Pose Error with clean 2D points is 0.0000

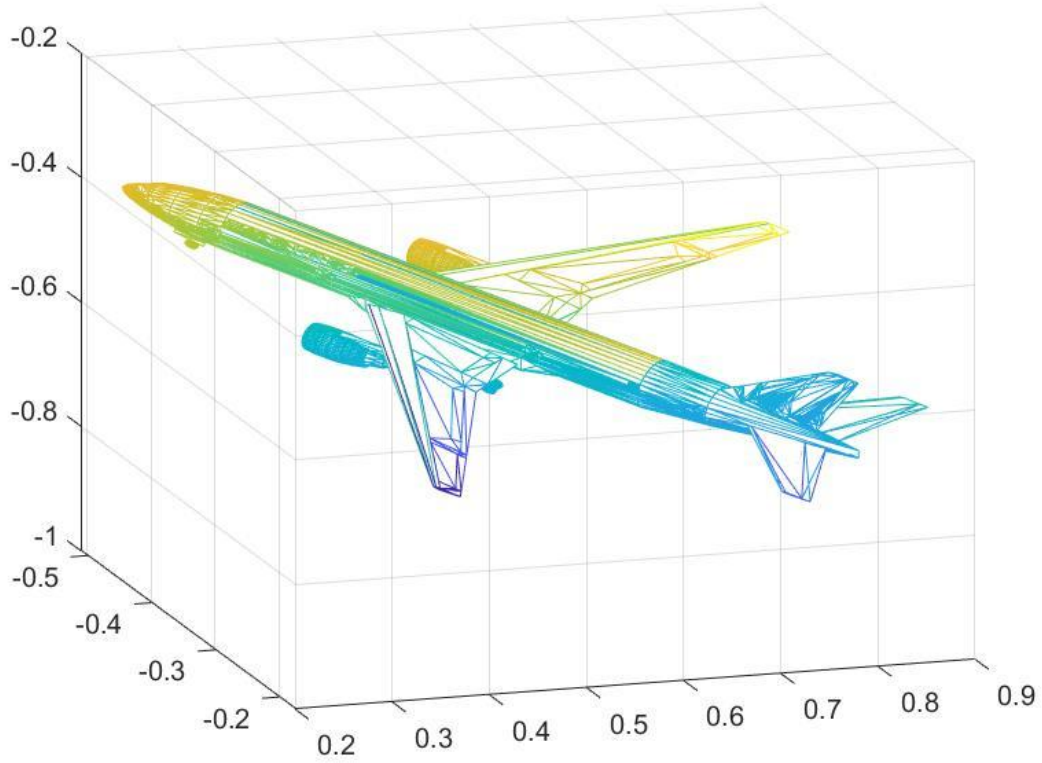
Reprojected Error with noisy 2D points is 6.6725
Pose Error with noisy 2D points is 0.0250

3.3.2:

Intrinsic Error with clean 2D points is 0.0000
Rotation Error with clean 2D points is 0.0000
Translation Error with clean 2D points is 0.0000

Intrinsic Error with noisy 2D points is 0.9148
Rotation Error with noisy 2D points is 0.1742
Translation Error with noisy 2D points is 2.7532

3.3.3:


-0.2
-0.4
-0.6
-0.8
-1
-0.5
-0.4
-0.3
-0.2
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9