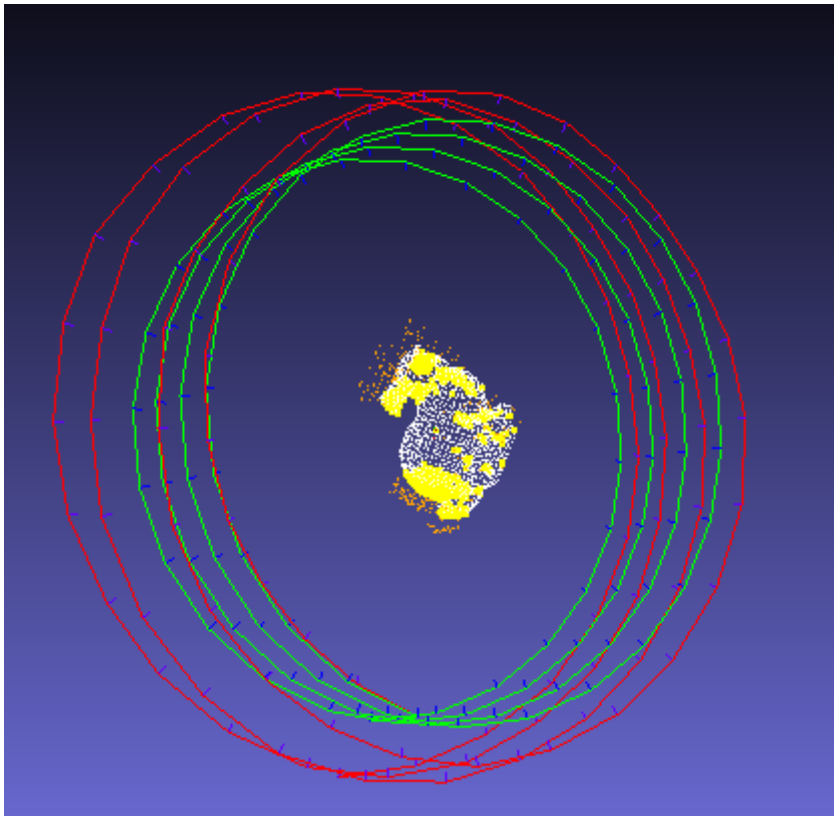
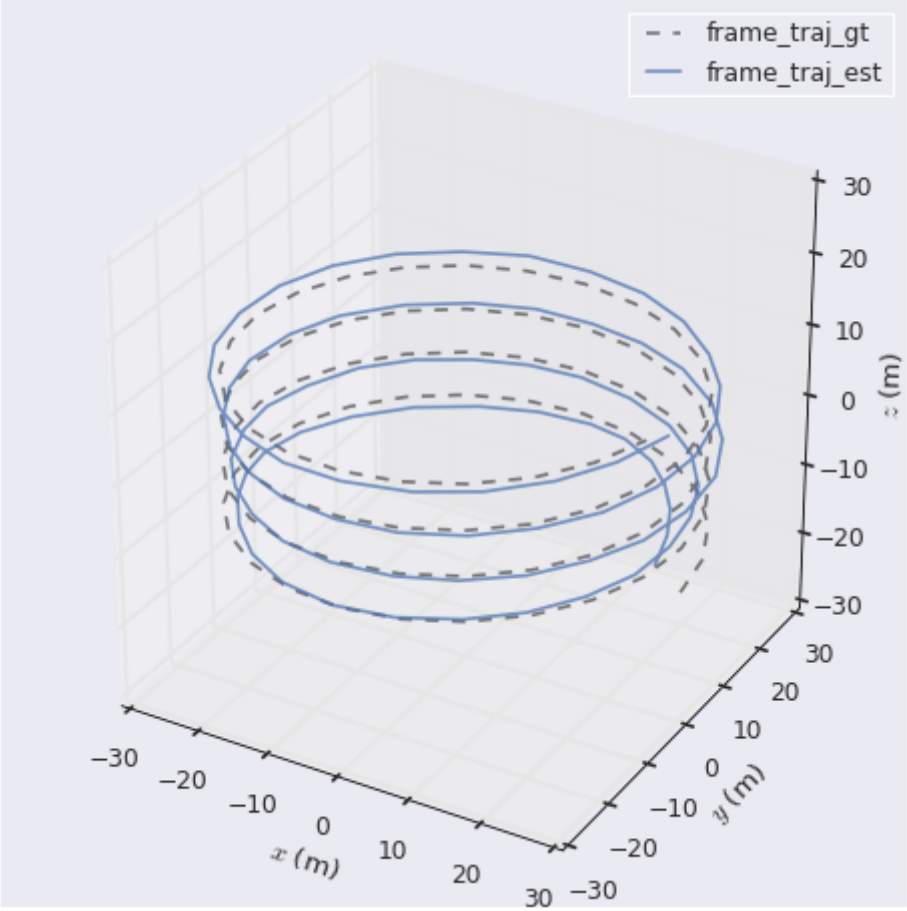
1. Task 1 : 直接三角化



```
 evo_traj tum frame_traj_est.txt --ref=frame_traj_gt.txt -p --plot_mode xyz  --
align --correct_scale
```




```
evo_ape tum frame_traj_est.txt frame_traj_gt.txt  -va --plot --plot_mode xyz --
save_results ape.zip
       max  7.988524
      mean  4.854794
    median  4.779704
       min  1.140661
      rmse  5.119821
       sse  2516.406403
       std  1.625897
```

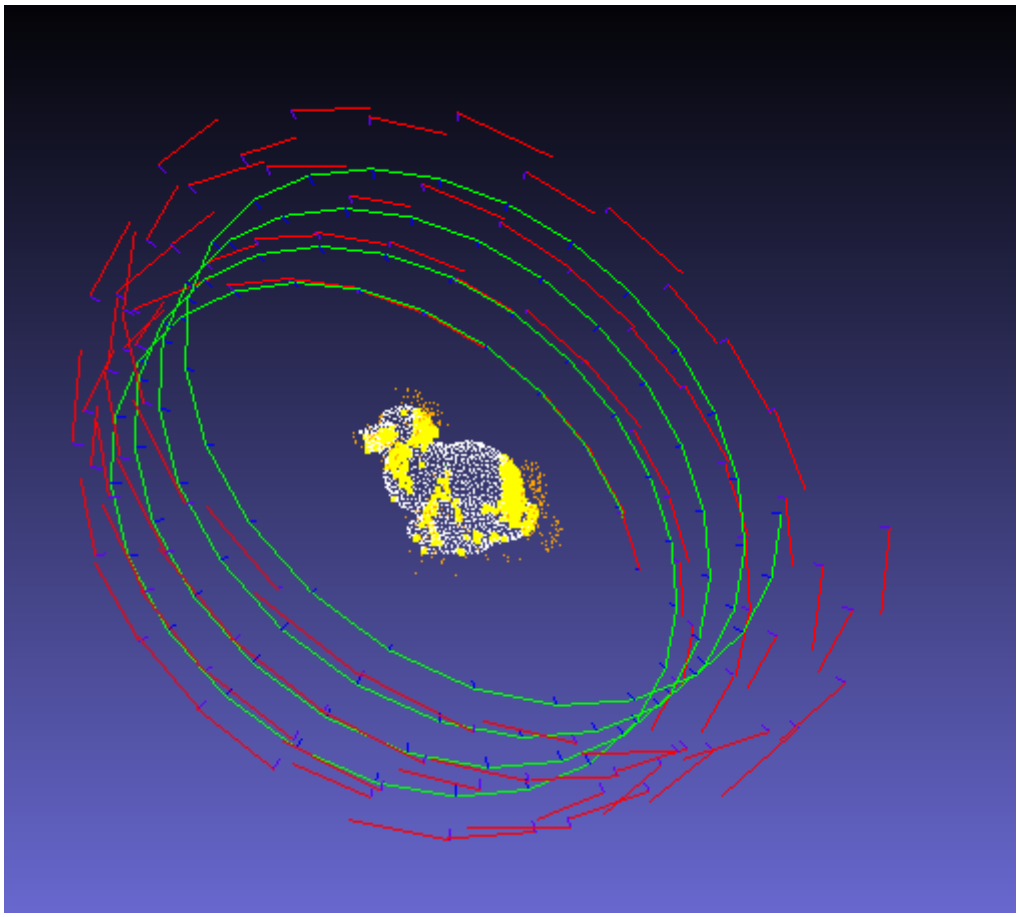
```
 evo_rpe tum frame_traj_est.txt frame_traj_gt.txt  -va --plot --plot_mode xyz --
save_results rpe.zip

       max  2.503827
      mean  1.380783
    median  1.401187
       min  0.345557
      rmse  1.479378
       sse  207.913208
       std  0.531035
```

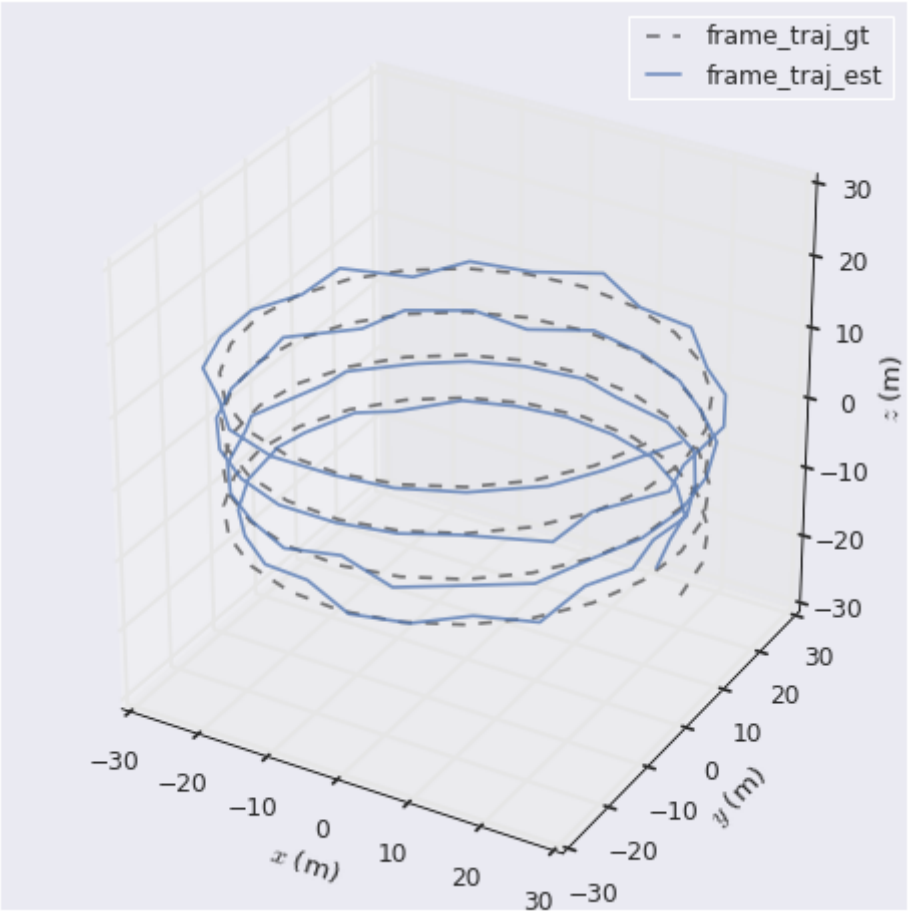
```
evo_res ape.zip -p --save_table table.csv

                   max     mean  median      min     rmse      sse     std
frame_traj_gt  7.98852  4.85479  4.7797  1.14066  5.11982  2516.41  1.6259
```

2. task2： 三角化 + BA



```
 evo_traj tum frame_traj_est.txt --ref=frame_traj_gt.txt -p --plot_mode xyz  --
align --correct_scale
```



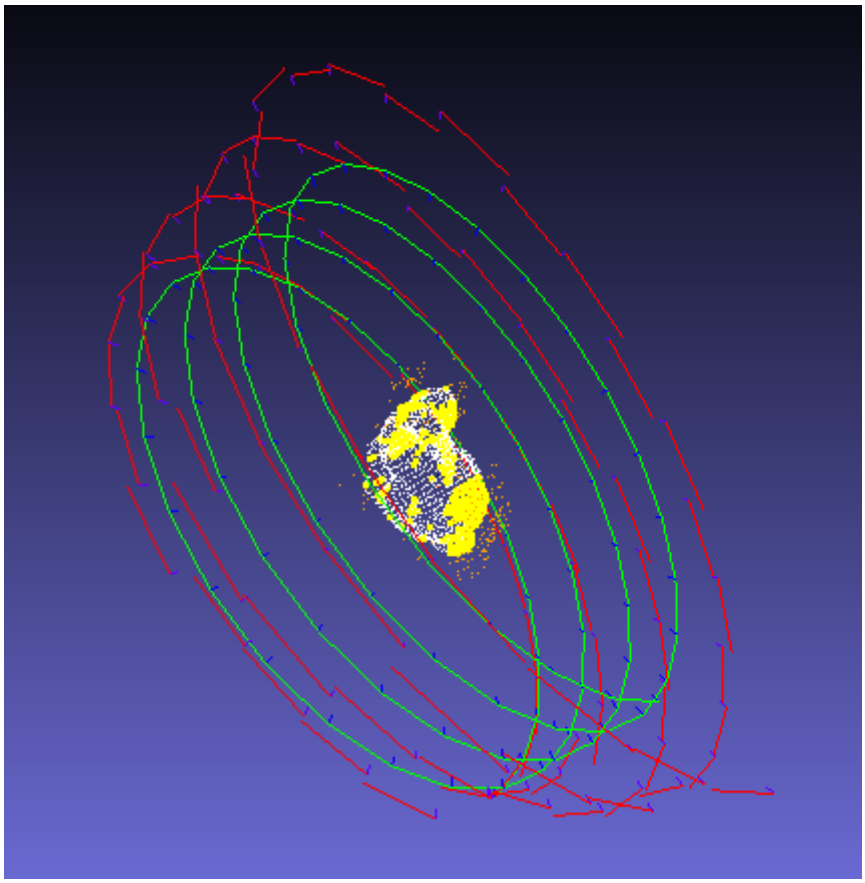

```
evo_ape tum frame_traj_est.txt frame_traj_gt.txt  -va --plot --plot_mode xyz --
save_results ape.zip
       max  10.501061
      mean  4.972917
    median  4.987029
       min  0.748890
      rmse  5.407921
       sse  2807.578331
       std  2.125018
```

```
 evo_rpe tum frame_traj_est.txt frame_traj_gt.txt  -va --plot --plot_mode xyz --
save_results rpe.zip
       max  6.432604
      mean  2.226684
    median  2.015685
       min  0.185895
      rmse  2.569802
       sse  627.368840
       std  1.282872
```

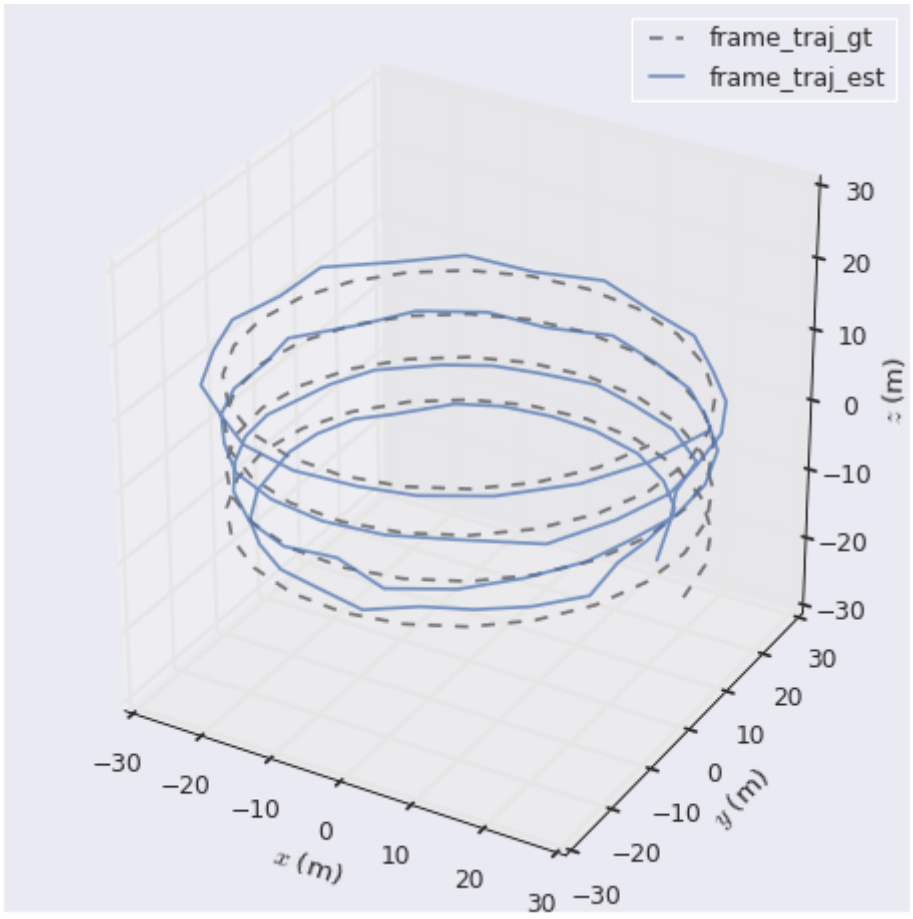
```
evo_res ape.zip -p --save_table table.csv

                   max     mean   median      min     rmse      sse      std
frame_traj_gt  10.5011  4.97292  4.98703  0.74889  5.40792  2807.58  2.12502
```

3. task3: 三角化 + BA + outlier



```
 evo_traj tum frame_traj_est.txt --ref=frame_traj_gt.txt -p --plot_mode xyz  --
align --correct_scale
```



```
evo_ape tum frame_traj_est.txt frame_traj_gt.txt  -va --plot --plot_mode xyz --
save_results ape.zip
       max  13.947302
      mean  6.741243
    median  6.842149
       min  0.946188
      rmse  7.316889
       sse  5139.538613
       std  2.844733
```

```
 evo_rpe tum frame_traj_est.txt frame_traj_gt.txt  -va --plot --plot_mode xyz --
save_results rpe.zip
       max  6.124327
      mean  2.232028
    median  2.046203
       min  0.196590
      rmse  2.524932
       sse  605.651957
       std  1.180396
```

```
evo_res ape.zip -p --save_table table.csv
                   max     mean   median       min     rmse      sse      std
frame_traj_gt  13.9473  6.74124  6.84215  0.946188  7.31689  5139.54  2.84473
```

4 综合分析

evo_ape(计算绝对位姿误差)

param	1	2	3
max	7.988524	10.501061	13.947302
mean	4.854794	4.972917	6.741243
median	4.779704	4.987029	6.842149
min	1.140661	0.74889	0.946188
rmse	5.119821	5.407921	7.316889
sse	2516.406403	2807.578331	5139.538613
std	1.625897	2.125018	2.844733

evo_rpe(计算相对位姿误差)

param	1	2	3
max	2.503827	6.432604	6.124327
mean	1.380783	2.226684	2.232028
median	1.401187	2.015685	2.046203
min	0.345557	0.185895	0.19659
rmse	1.479378	2.569802	2.524932
sse	207.913208	627.36884	605.651957
std	0.531035	1.282872	1.180396

**evo_res(结果比较)

	max	mean	median	min	rmse	sse	std
1	7.98852	4.85479	4.7797	1.14066	5.11982	2516.41	1.6259
2	10.5011	4.97292	4.98703	0.74889	5.40792	2807.58	2.12502
3	13.9473	6.74124	6.84215	0.946188	7.31689	5139.54	2.84473

总体效果，出现ba与outlier的操作结果反而使效果偏差，具体问题不详，待进一步检查。