Software Engineering Project:

Weekly Report

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I. SUMMARY OF THE WEEK

Last meetin, I mentioned about my ideas for developing 3D project by improvement of ICP. I have collected so many articles about this issue. The followings happened :

- KD tree algorithm is the most accurate and easy to implement.
- But to see the ICP weakness, I wanted to see ICP approach on Matlab
- After ICP, I would like to see the KD Tree result on Matlab
- I chose Matlab because , it is easier than C++ just for having an idea.
- I will concentrate more about STL to do same things that I did on Matlab
- I could not achieve to upload point cloud and apply KD Tree+ICP Matlab function.
- During this week, I will fix the Matlab file and I would like to see the results in my screen.
- It is obvious that, KD tree+ICP works very well.
- According to articles, The difference for Stanford Bunny is very valuable.
- To see the result on my computer, I used .ply files of 3D-Korn project. (project 1)
- Althoug KD tree gives better result than naked ICP, I would like to concentrate GF+ICP algorithm according to one of article.
- When I compare the power of algorithms IC,KD+ICP and GF+ICP, GF+ICP gives the best result among them.
- Next week, I will give the final decision about algorithm.
- On the other hand, choosing filter can be another development .
- I have found some articles about filtering 3D point cloud. Previous year projects while 1 used different filter algorithm, 2-3 and 4 used the same filters.
- I think fresh idea about filtering can be a good improvement. Also to see the differences between filters, Using combination of filters can be good.

- Until next week, I will have rough idea about filtering. First I have to focus on and finish the decision of registration algorithm
- For KDTree+ICP algorithm, I just have seen the result of created object. I did not achieve arranging the Matlab file to see the result of uploaded 3DKorn point clouds.
- I will try to modify Matlab code to see the results.

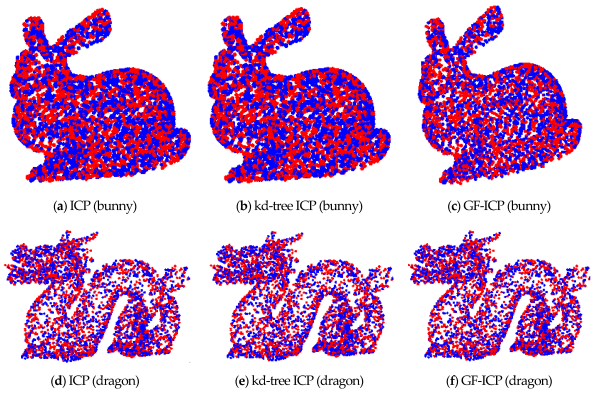

FIG. 1: Difference between ICP,ICP+KD Tree and ICP+GF

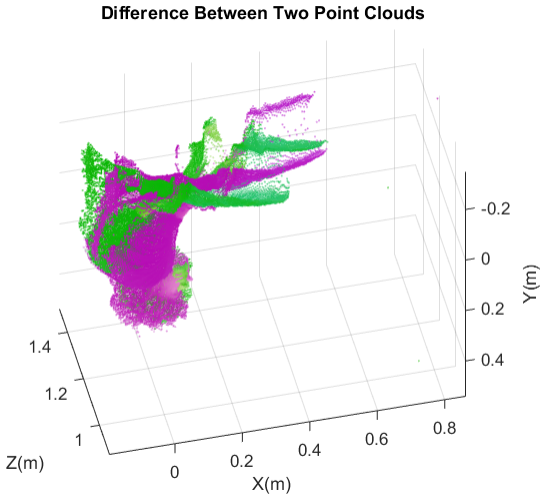

FIG. 2: Matlab output from 3DKorn datas

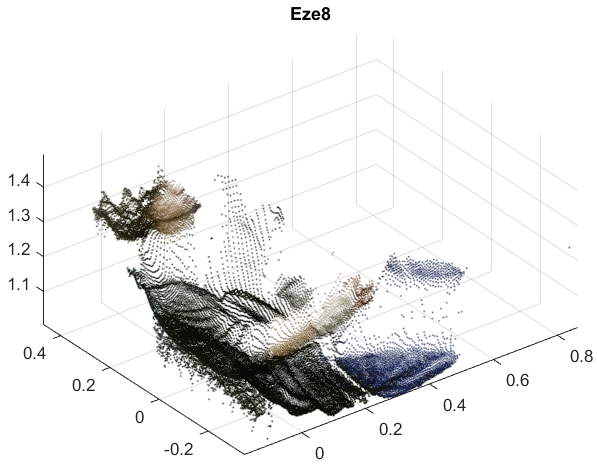

FIG. 3: Matlab output from 3DKorn datas

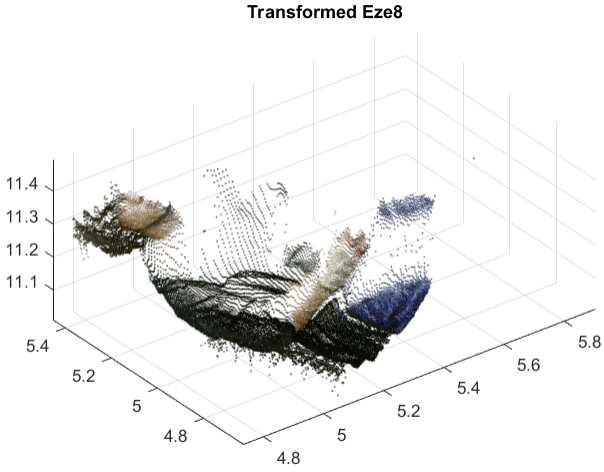

FIG. 4: Matlab output from 3DKorn datas