PCL (Point Cloud Library) is a large-scale cross-platform open source C++ programming library established on the basis of absorbing previous point cloud-related research. It implements a large number of point cloud-related general algorithms and efficient data structures, involving point cloud acquisition, Filtering, segmentation, registration, retrieval, feature extraction, recognition, tracking, surface reconstruction, visualization, etc. It supports multiple operating system platforms and can run on Windows, Linux, Android, Mac OS X, and some embedded real-time systems. If OpenCV is the crystallization of 2D information acquisition and processing, then PCL has the same status in 3D information acquisition and processing. PCL is BSD authorized and can be used for commercial and academic applications free of charge.

1.Start camera

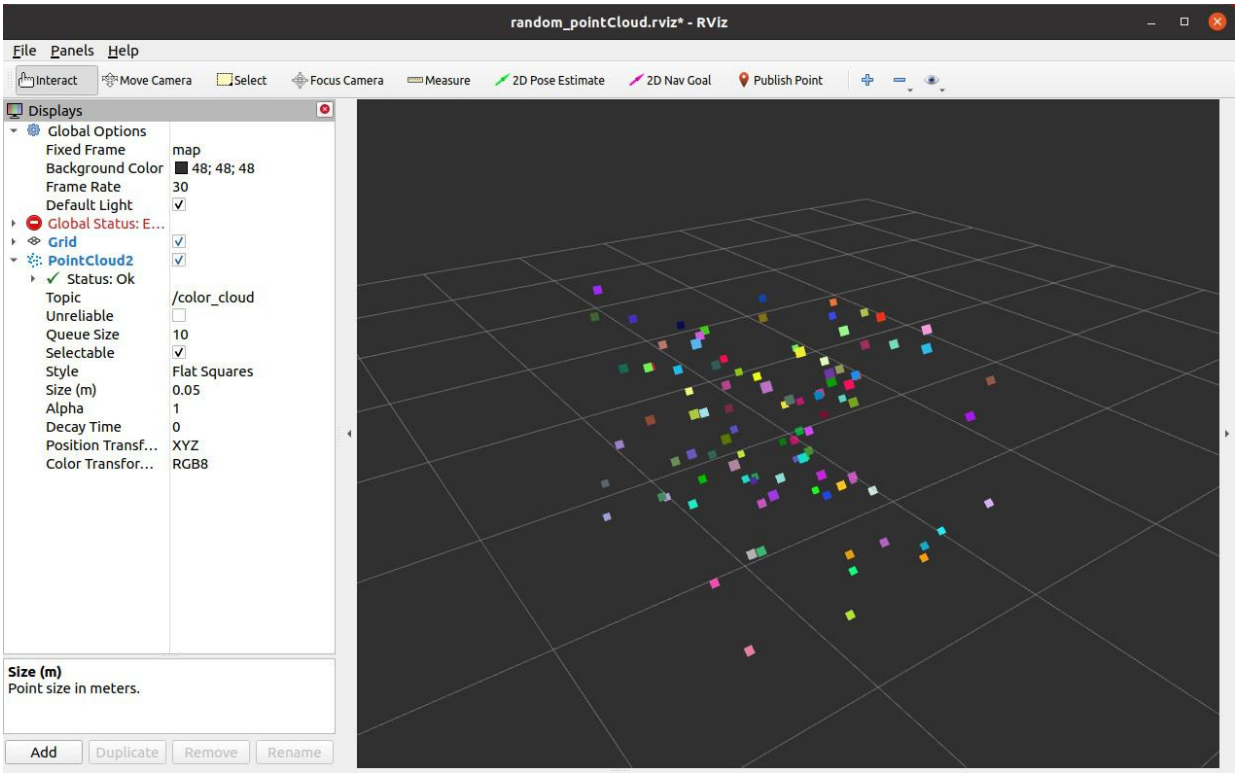
Start the Astra camera

```
roslaunch astra_camera astrapro.launch  #Start RDK-X3
```

2. Point cloud visualization

Publish the point cloud, and the launch file contains the startup of rviz. You can clearly see a point cloud flickering in the middle of rviz.

```
roslaunch astra_visual pointCloud_pub.launch #Start VM
```



pcl_visualization

The PCL visualization library is created to quickly restore and visualize the results obtained after calculating 3D point cloud data through algorithms. A highgui program similar to OpenCV, used to display two-dimensional images or two-dimensional shapes on the screen.

Input following command

```
roslaunch astra_visual pointCloud_visualize.launch  #Start VM

rosrun astra_visual pointCloud_visualize            #Start VM
```

快捷键

【Ctrl】+【-】：缩小。

【Shift】+【+】：放大。

【Alt】+【-】：拉远。

【Alt】+【+】：拉进。

鼠标滑轮和左右按键也可控制。代码分析

源码注释很清晰，请直接查看源码。~/astra_ws/src/astra_visual/src/pcl_visualize.cpp