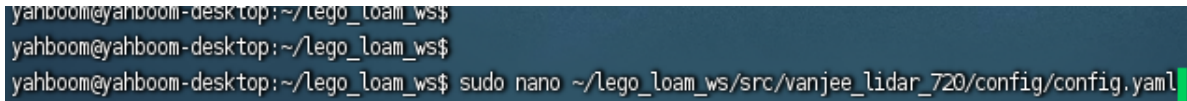


# Lego-Loam mapping

## 1、Radar configuration

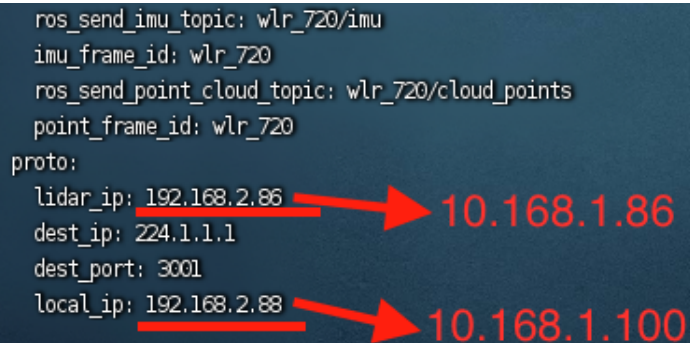
Enter the command in the terminal and press the Enter key:

```
sudo nano ~/lego_loam_ws/src/vanjee_lidar_720/config/config.yaml
```



A terminal window showing the command `sudo nano ~/lego_loam_ws/src/vanjee_lidar_720/config/config.yaml` being entered. The prompt is `yahboom@yahboom-desktop:~/lego_loam_ws$`. The command is highlighted with a red underline.

Taking my car as an example, the Jetson nano's IP is 10.168.1.100 and the radar IP is 10.168.1.68, so modify it as shown in the picture below.



A screenshot of the `config.yaml` file in a text editor. The file contains the following configuration:

```
ros_send_imu_topic: wlr_720/imu
imu_frame_id: wlr_720
ros_send_point_cloud_topic: wlr_720/cloud_points
point_frame_id: wlr_720
proto:
  lidar_ip: 192.168.2.86
  dest_ip: 224.1.1.1
  dest_port: 3001
  local_ip: 192.168.2.88
```

Red arrows indicate the modifications made to the IP addresses:

- The `lidar_ip` value `192.168.2.86` is changed to `10.168.1.86`.
- The `local_ip` value `192.168.2.88` is changed to `10.168.1.100`.

After modification, press ctrl + x and then enter y and press Enter to save.

## 2、Configure map save path

Edit file:

```
~/lego_loam_ws/src/LeGO-LOAM/LeGO-LOAM/include/utility.h
```

Enter the command in the terminal:

```
sudo nano ~/lego_loam_ws/src/LeGO-LOAM/LeGO-LOAM/include/utility.h
```



A terminal window showing the command `sudo nano ~/lego_loam_ws/src/LeGO-LOAM/LeGO-LOAM/include/utility.h` being entered. The prompt is `yahboom@yahboom-desktop:~/lego_loam_ws$`. The command is highlighted with a red underline.

Like the picture below, change it to your own path



After the modification is completed, enter the command in the terminal:

```
cd ~/lego_loam_ws
catkin build
```

Recompile the workspace.

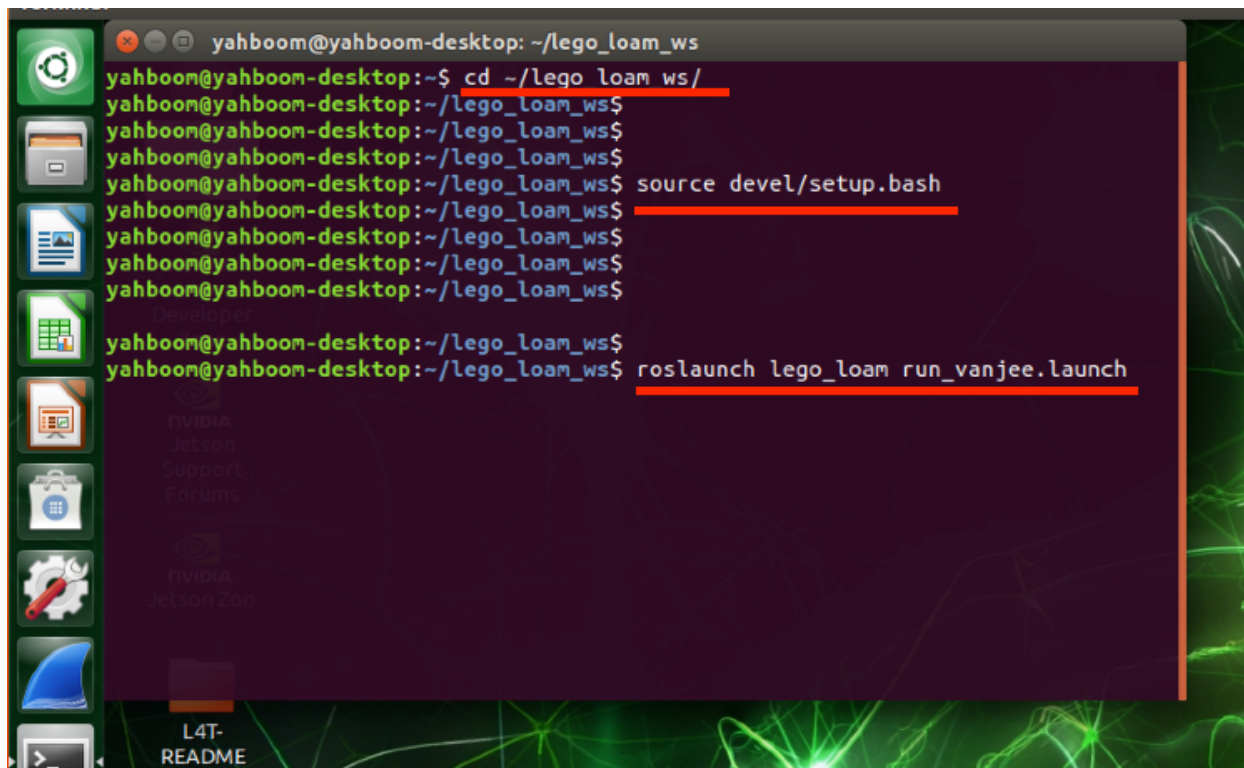
### 3、Start mapping launch

1、Run lego\_loam\_vanjee in real time

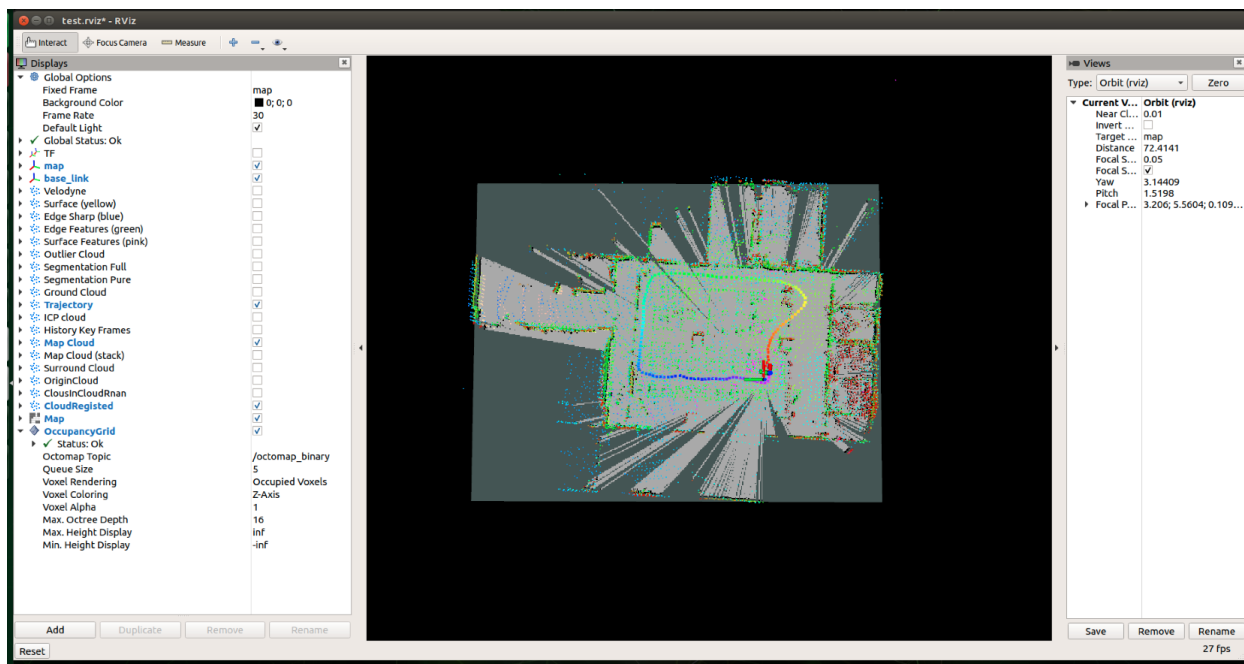
This requires direct operation on the host because rviz needs to be opened.

Enter the command in the terminal:

```
cd ~/lego_loam_ws/
source devel/setup.bash
roslaunch lego_loam run_vanjee.launch
```



The picture below shows the mapping results:



save map

Save via octomap and enter the command in the terminal

```
cd ~/lego_loam_ws/

source devel/setup.bash

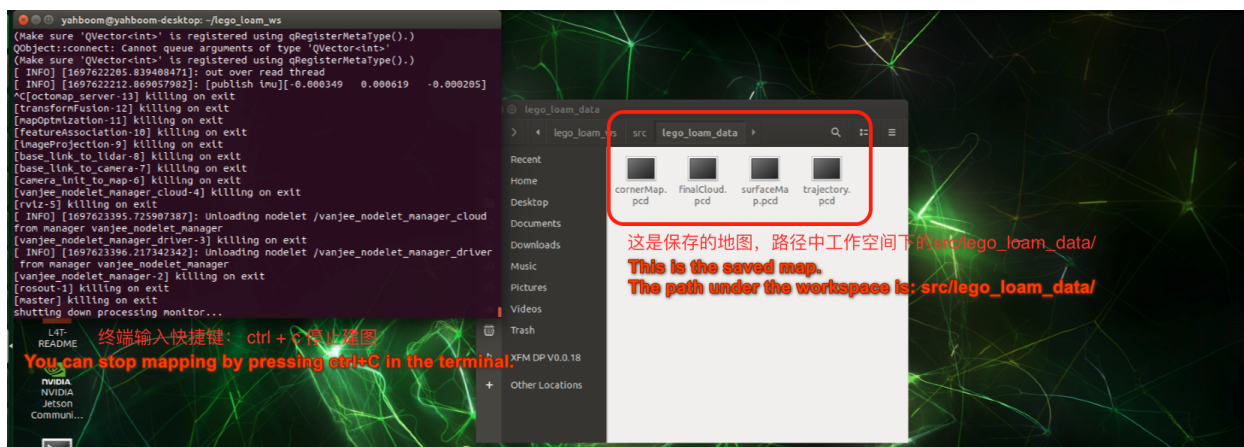
roslaunch octomap_server octomap_saver mapfile.bt

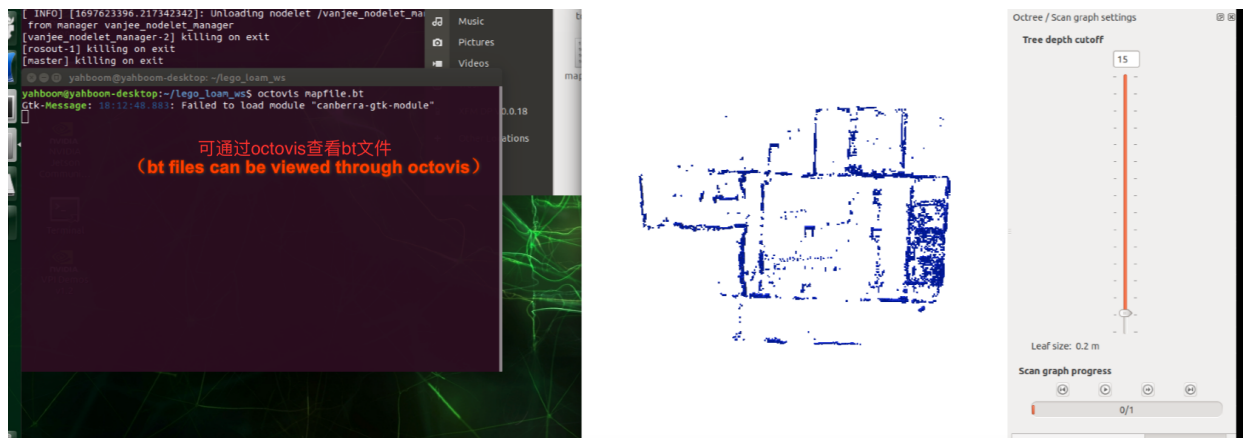
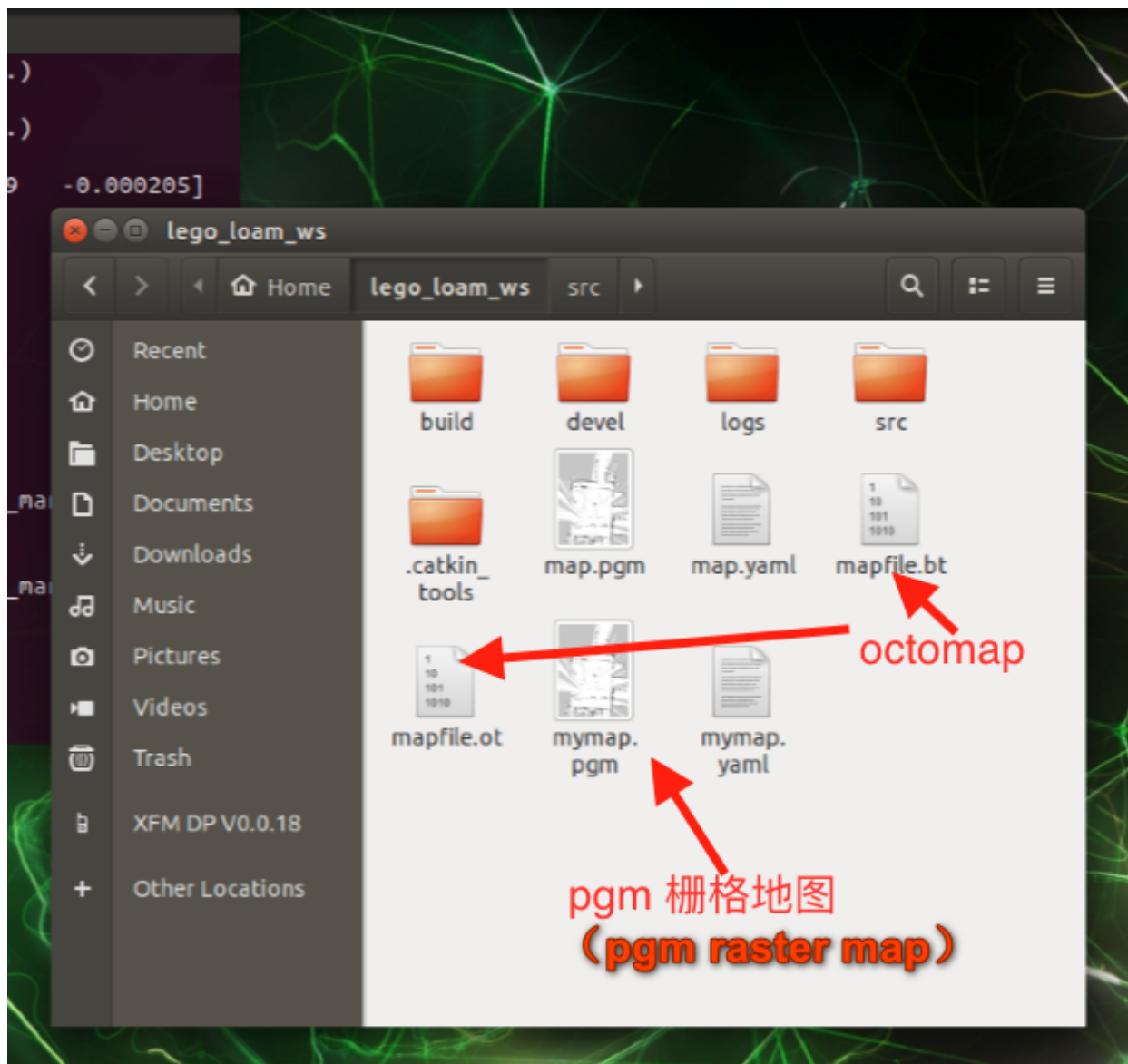
roslaunch octomap_server octomap_saver -f mapfile.ot
```

Save as a pgm map, enter the command in the terminal, mymap is the name of the map

```
roslaunch map_server map_saver map:=/projected_map -f mymap
```

Saving pcd maps is relatively simple, just press ctrl + c to stop mapping.





## 2. Offline mapping

First, you need to use vanjee radar to collect 3D data and enter the command in the terminal:

```
cd ~/lego_loam_ws
source devel/setup.bash
roslaunch vanjee_lidar vanjee.launch
```

Then open a new terminal and enter the command in the terminal:

```
cd ~/lego_loam_ws  
source devel/setup.bash  
rosbag record /wlr_720/cloud_points -o test.bag
```

After controlling the radar to move around, enter ctrl + c in the terminal to stop recording packets and stop the radar from running.

Note: Both terminals must be stopped.

Note: The test.bag file path is under the workspace, that is, under the ~/lego\_loam\_ws folder.

To play the bag map offline, open a new terminal and enter the command:

```
cd ~/lego_loam_ws  
source devel/setup.bash  
rosbag play --clock test.bag --topics /wlr_720/cloud_points
```

Open a new terminal and enter the command:

```
cd ~/lego_loam_ws  
source devel/setup.bash  
roslaunch lego_loam run_vanjee_sim.launch
```

The method of saving the map is the same as that of online mapping, so I won't go into details here.