4、AR vision

1、Overview

ARTag (AR tag, AR means "augmented reality") is a fiducial marking system, which can be understood as a reference for other objects. It looks similar to a QR code, but its coding system and QR code are difference, it is mostly used in camera calibration, robot positioning, augmented reality (AR) and other applications.

The AR system has three outstanding features:

- Information integration of real world and virtual world;
- Real-time interactivity;
- Added positioning of virtual objects in 3D scale space.

Augmented reality technology includes multimedia, 3D modeling, real-time video display and control, multi-sensor fusion, real-time tracking and registration, scene fusion and other new technologies and means.

There are a total of 12 AR effects in this case, namely,

```
["Triangle", "Rectangle",
"Parallelogram","WindMill","TableTennisTable","Ball","Arrow", "Knife",
"Desk","Bench", "Stickman", "ParallelBars"]
```

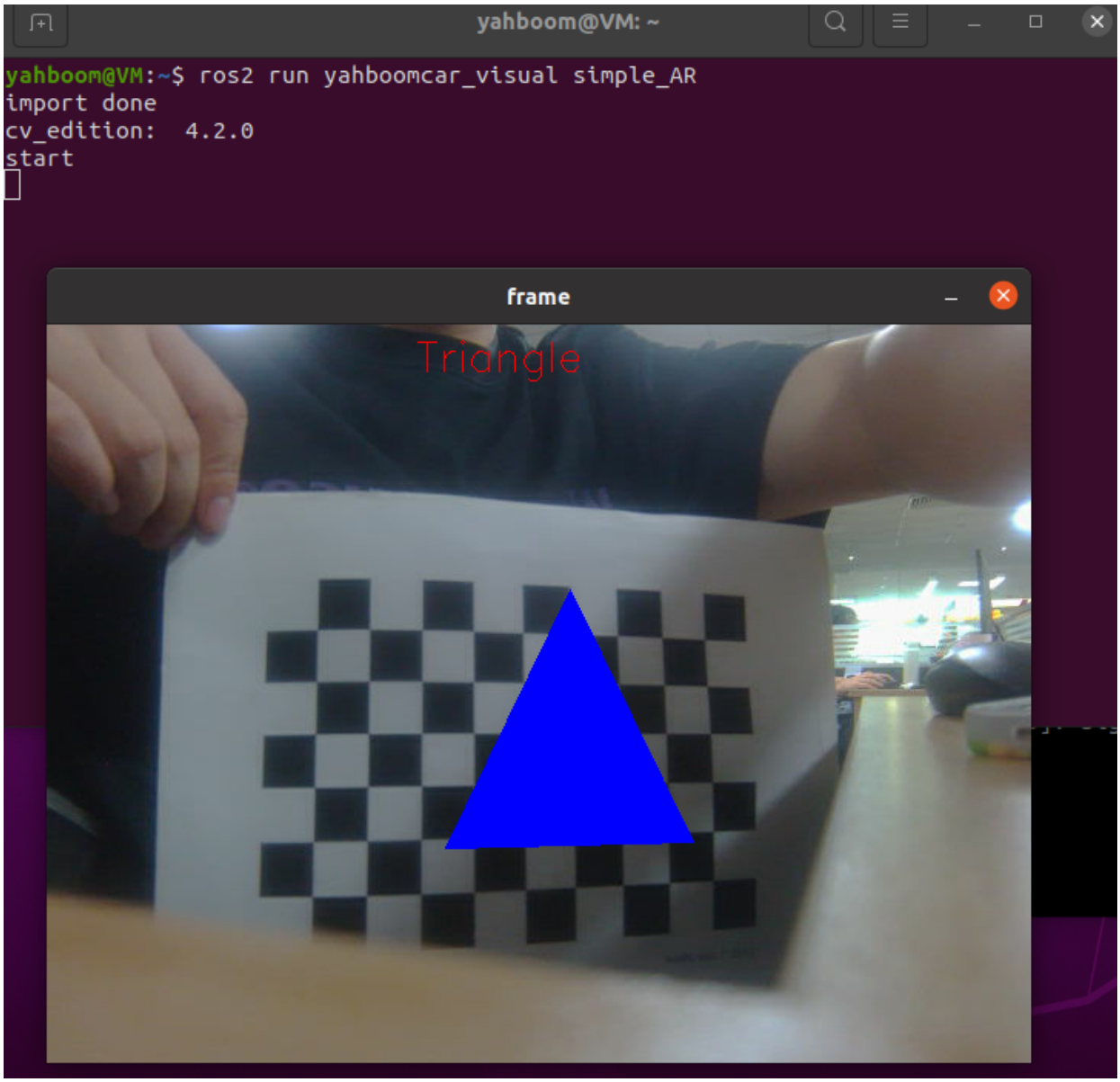
2、start command

code reference path，

```
~/orbbec_ws/src/yahboomcar_visual/yahboomcar_visual/simple_AR.py
```

Enter the following command in the terminal to start，

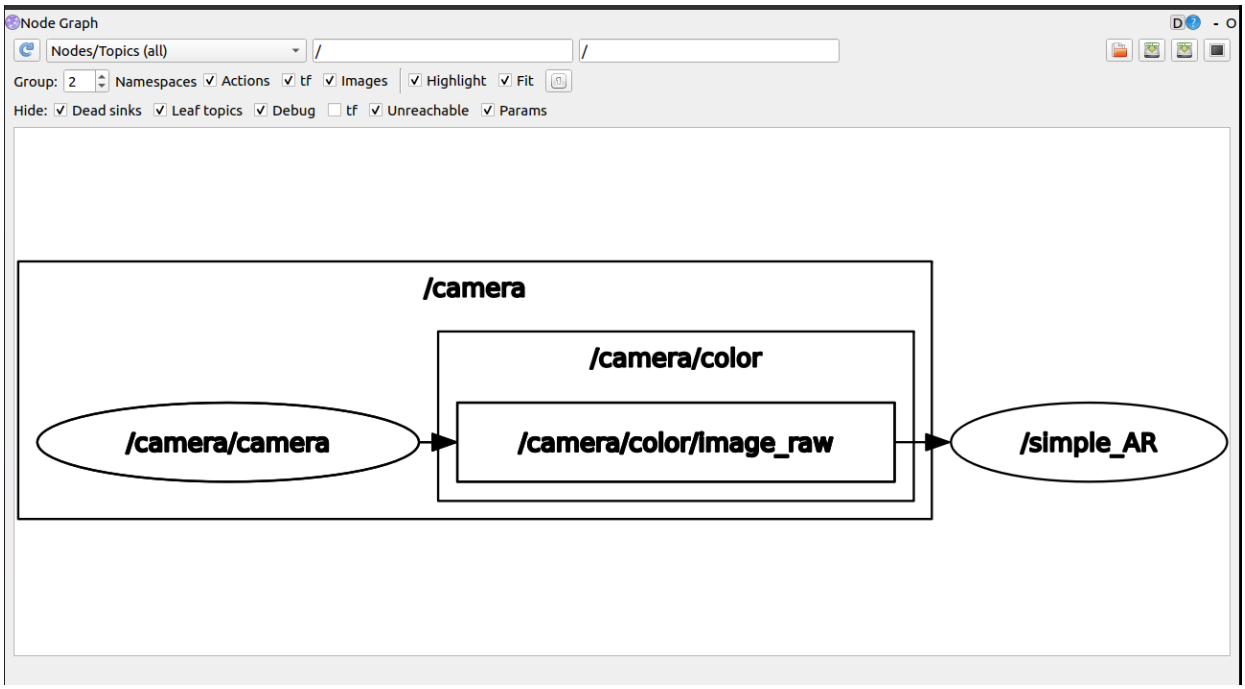
```
ros2 launch orbbec_camera gemini2.launch.xml
ros2 run yahboomcar_visual simple_AR
```



【f】Switch between different effects。

View communication between topics, terminal input，

```
ros2 run rqt_graph rqt_graph
```



View topic data list, terminal input,

```
ros2 topic list
```

```
yahboom@VM:~$ ros2 topic list
/Graphics_topic
/camera/color/camera_info
/camera/color/image_raw
/camera/depth/camera_info
/camera/depth/image_raw
/camera/depth/points
/camera/depth_registered/points
/camera/ir/camera_info
/camera/ir/image_raw
/parameter_events
/rosout
/simpleAR/camera
/tf
/tf_static
```

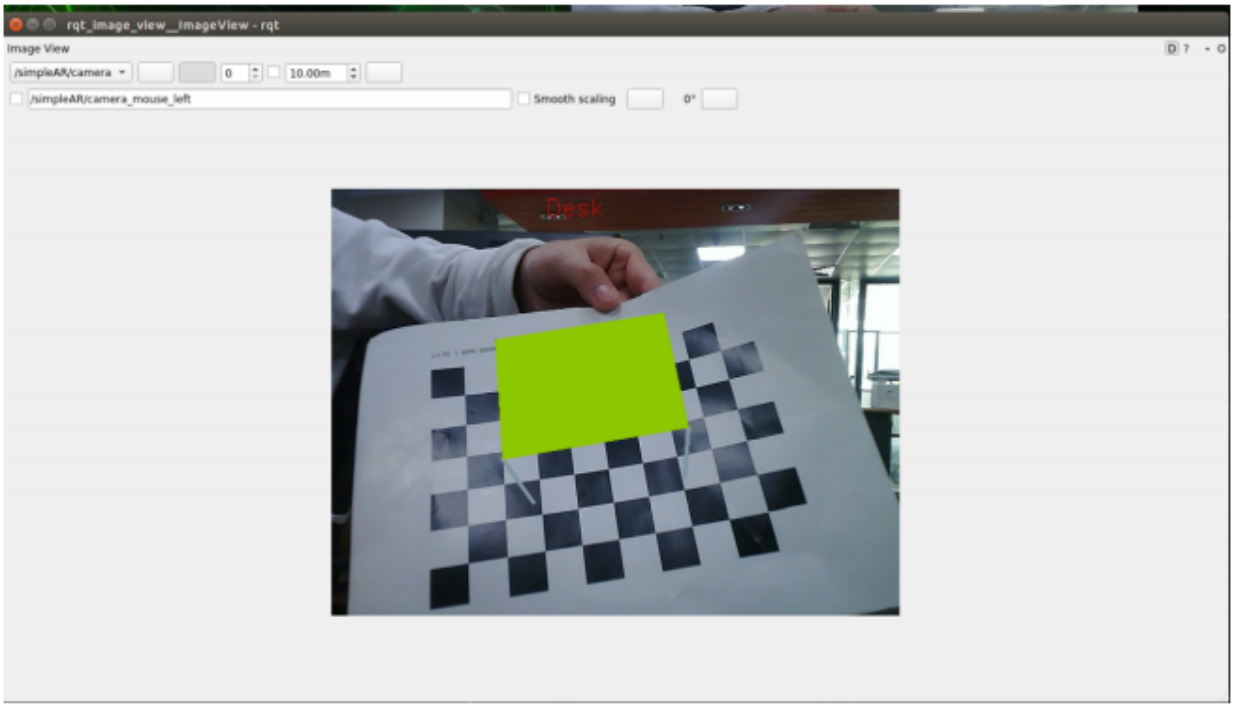
- /Graphics_topic：The topic name of the effect, subscribe to the effect that needs to be identified.
- /simpleAR/camera：The topic name of the image, posting the image.

The modification effect can be modified by the following command, for example, modify to Desk, terminal input,

```
ros2 topic pub /Graphics_topic std_msgs/msg/String "data: Desk"
```

View published images can be viewed using rqt_image_view, terminal input,

```
ros2 run rqt_image_view rqt_image_view
```



Select /simpleAR/camera on the topic in the upper left corner to view the image.