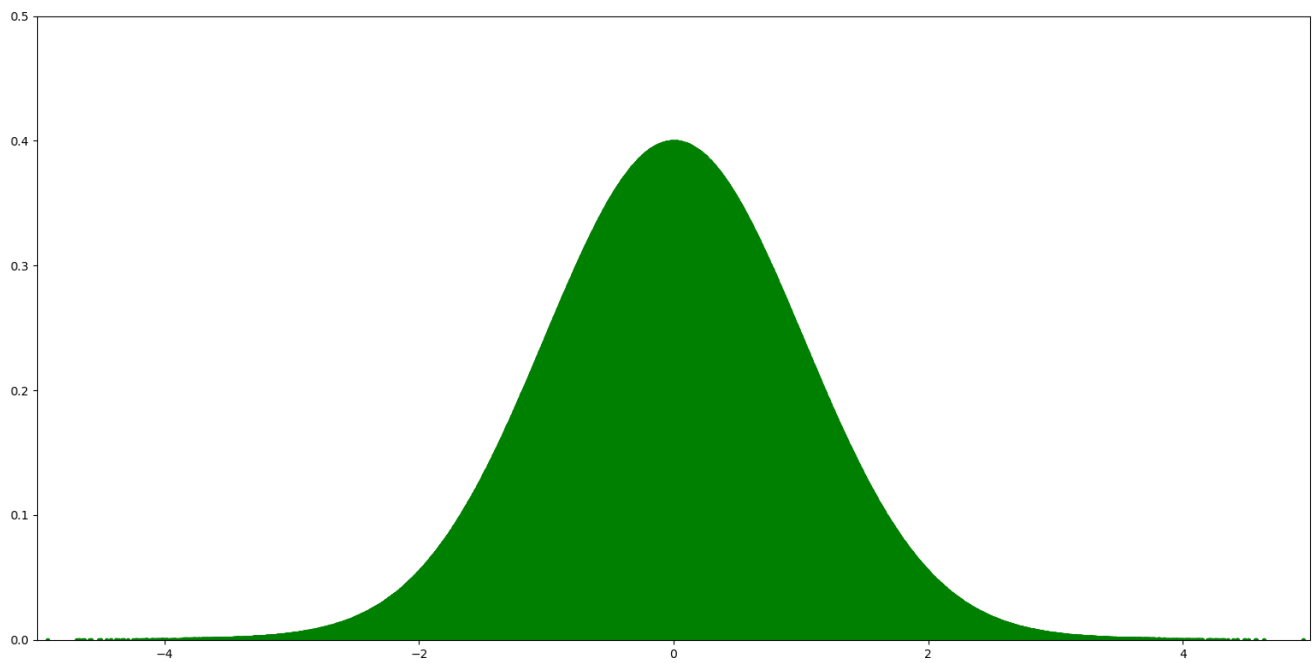
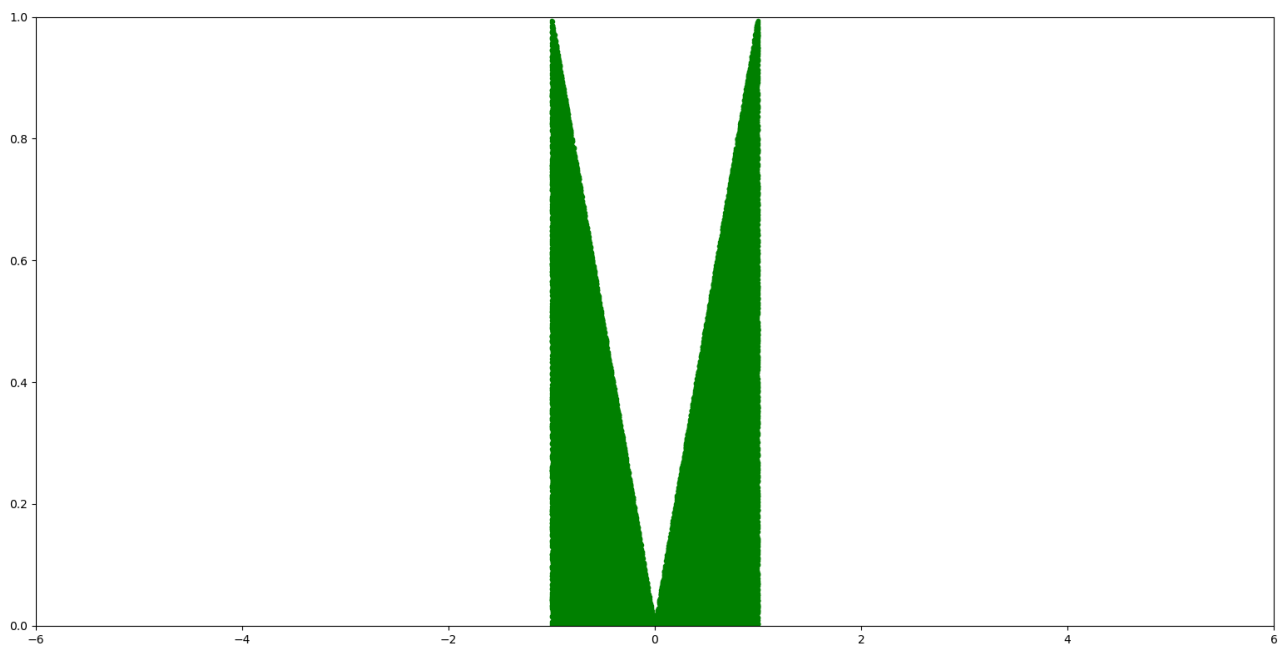


Q1

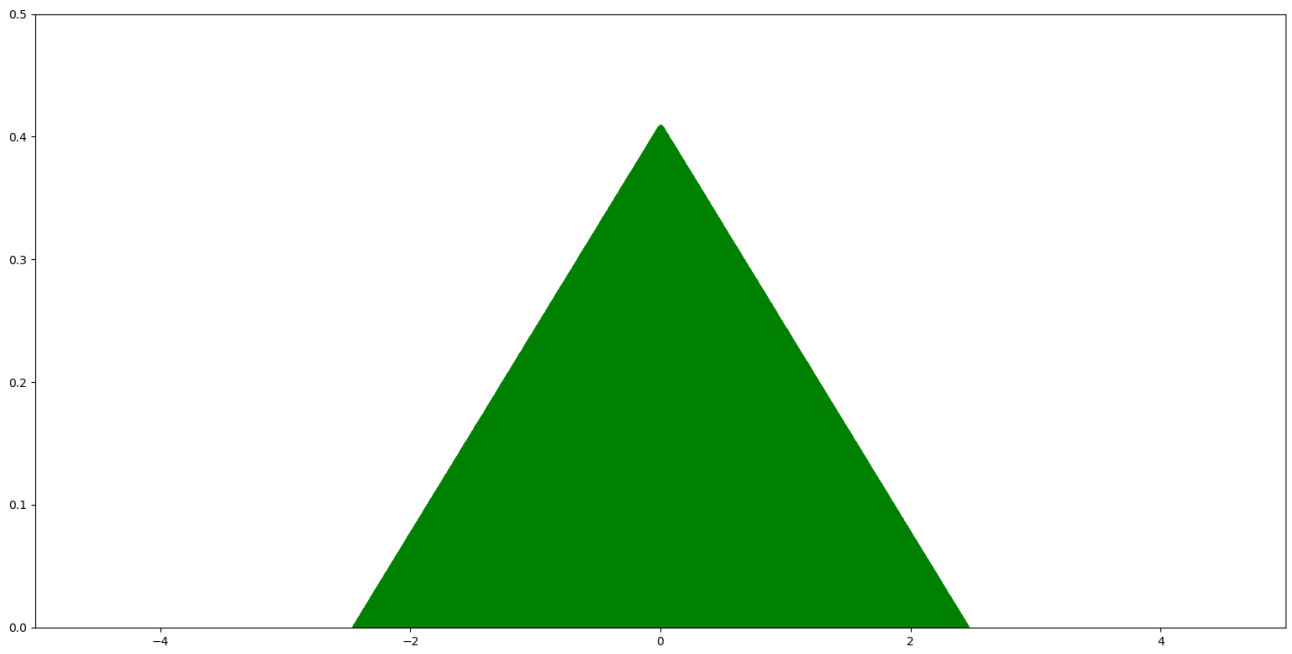
Normal:



abs:

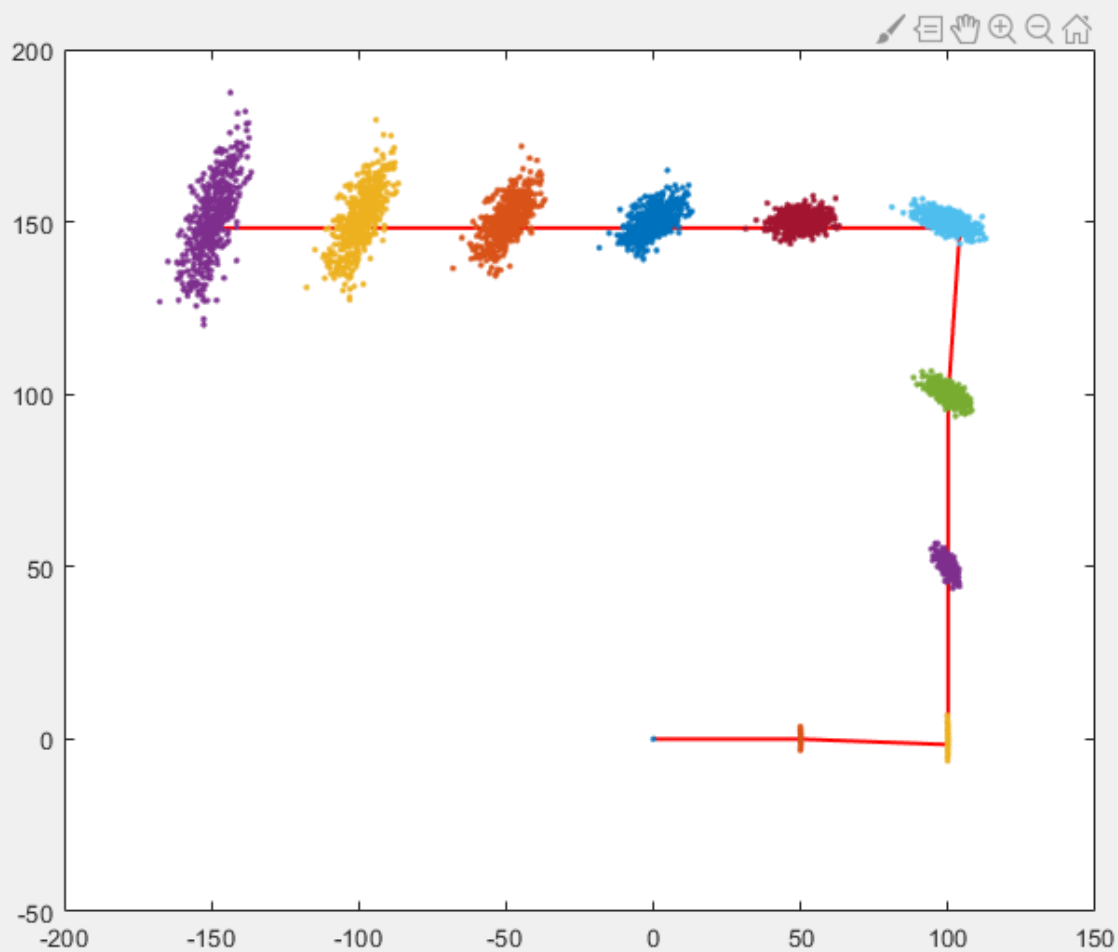


triangular:

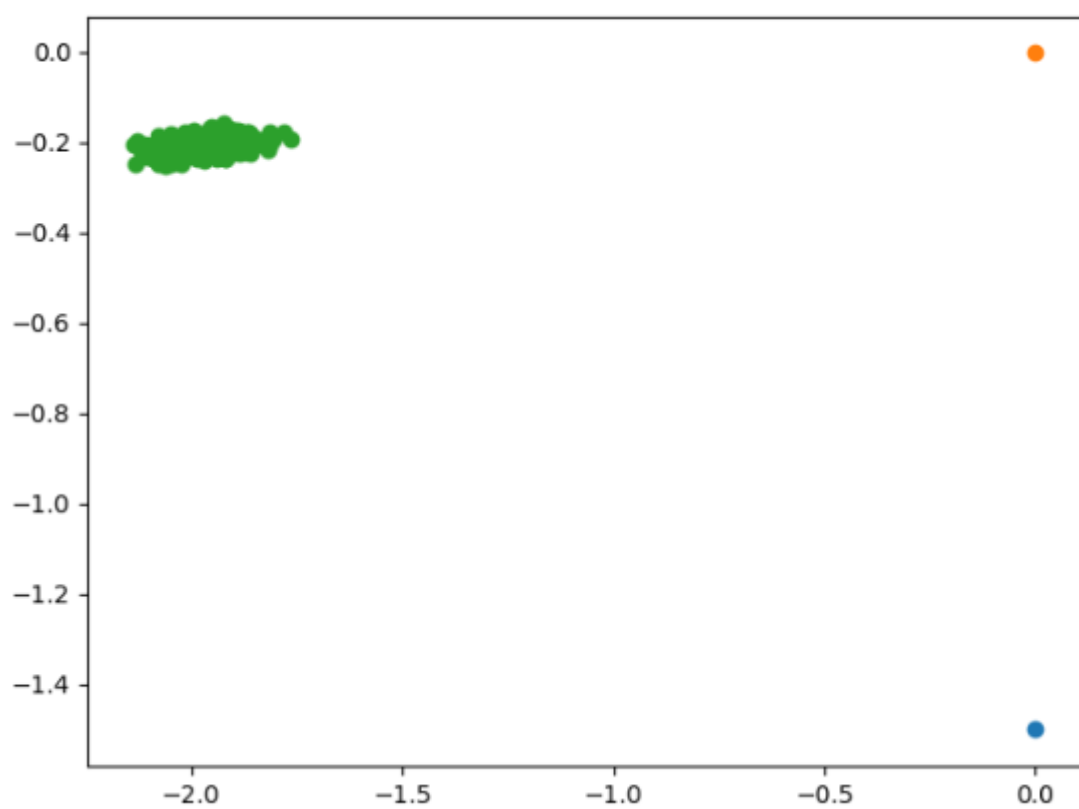
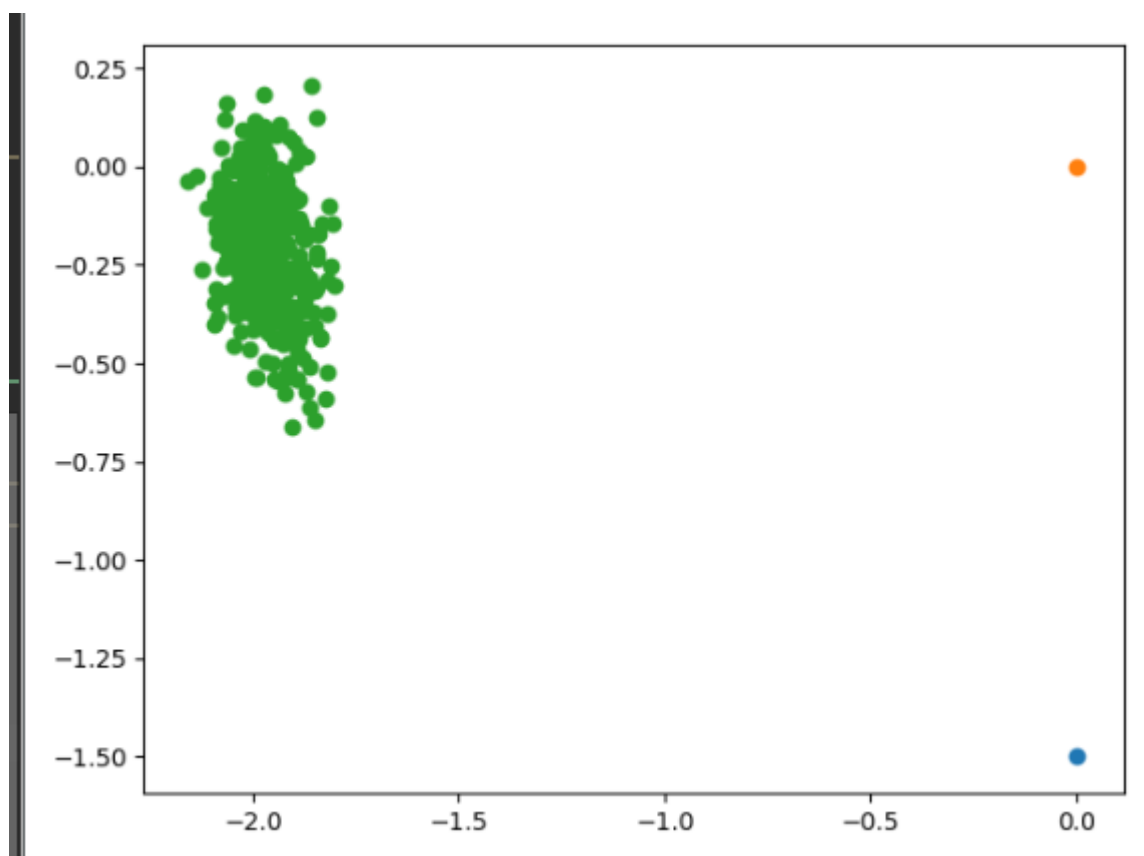


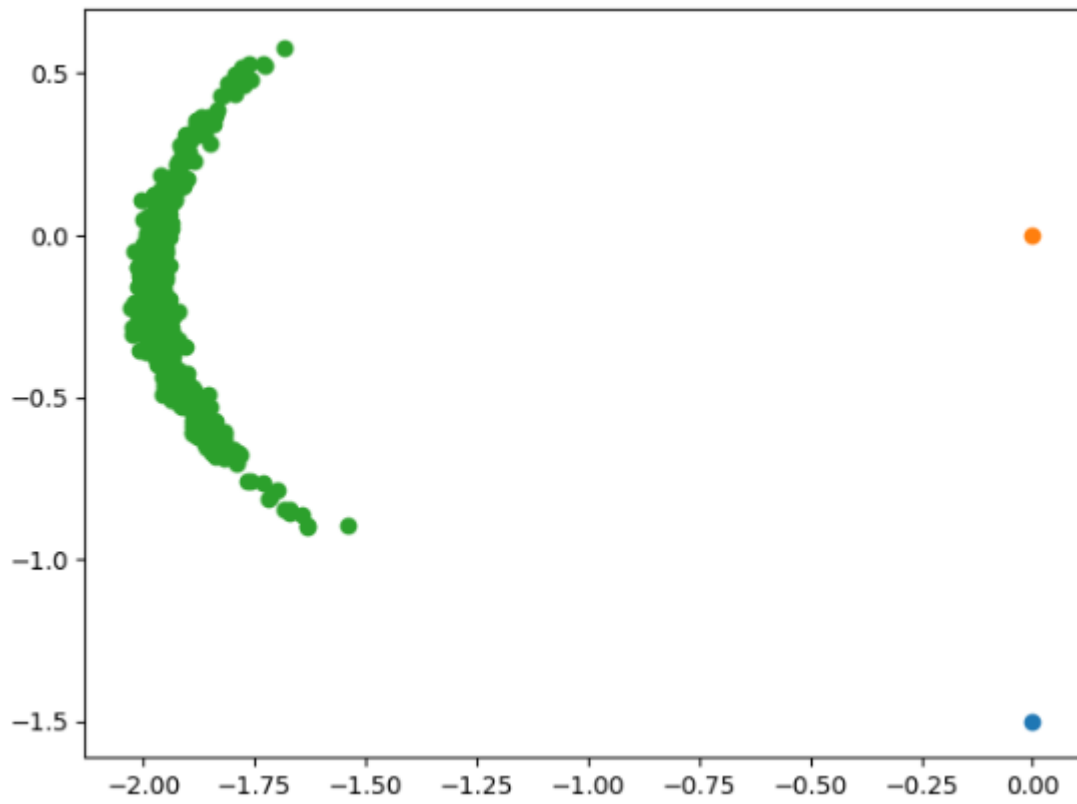
Q2

odometry based:

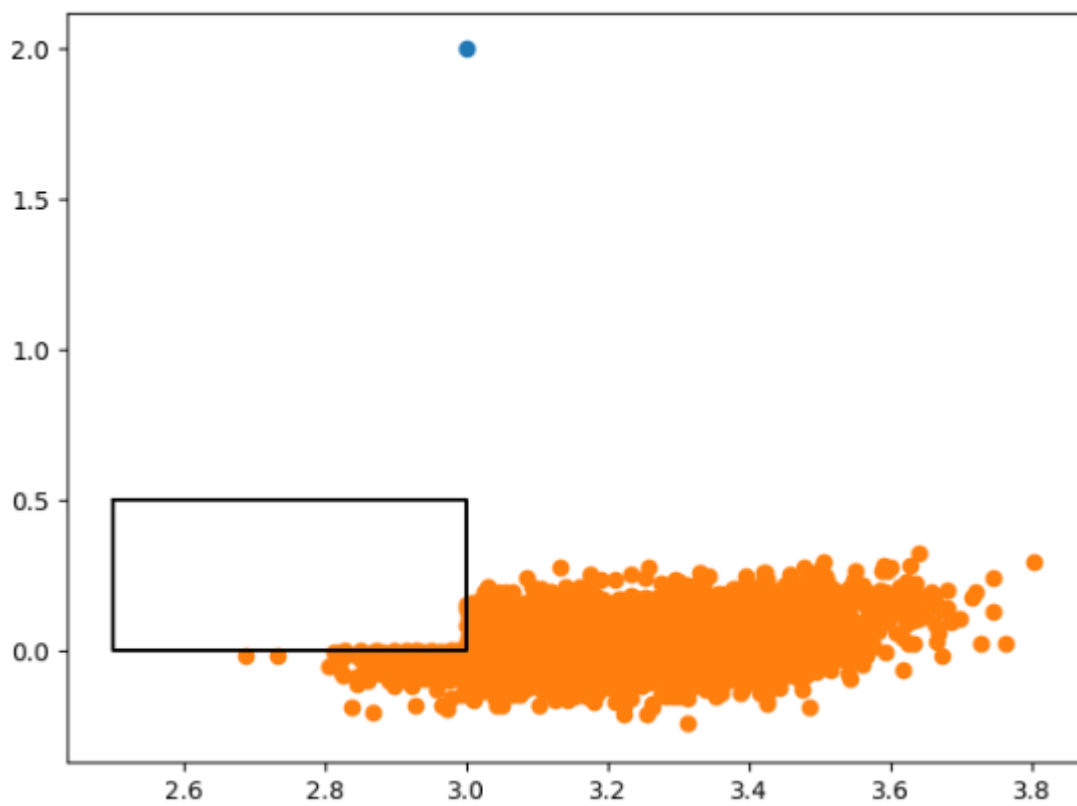


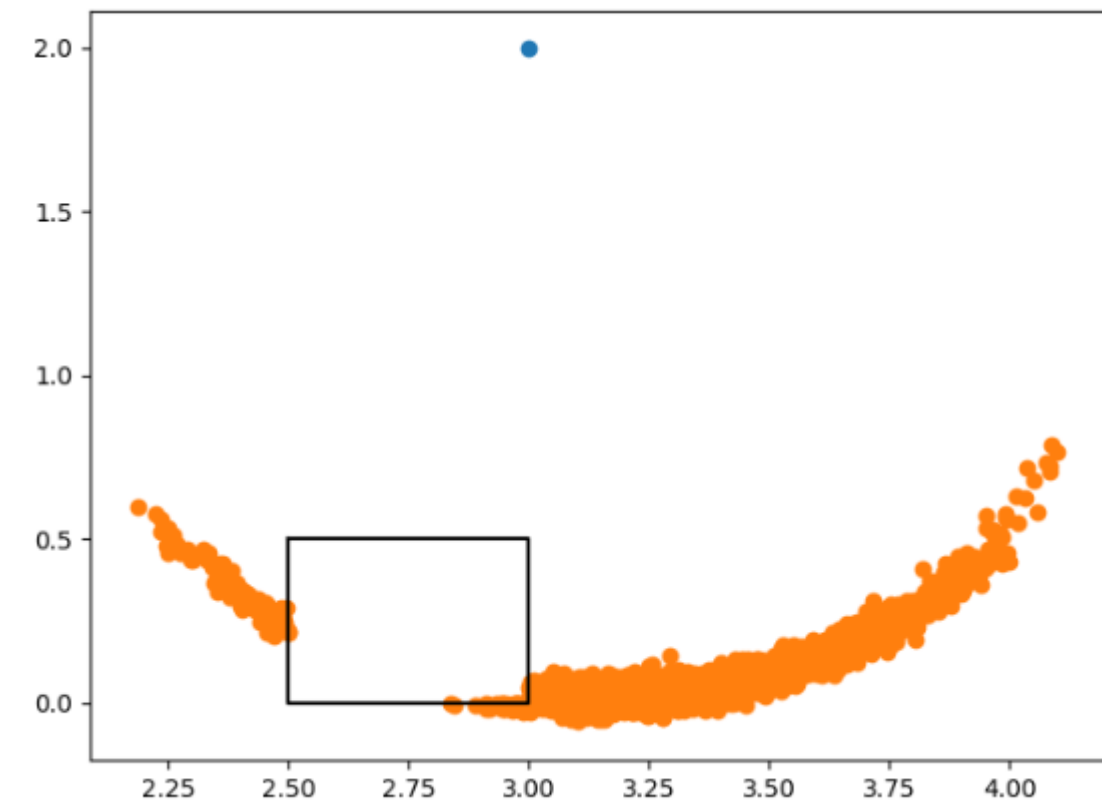
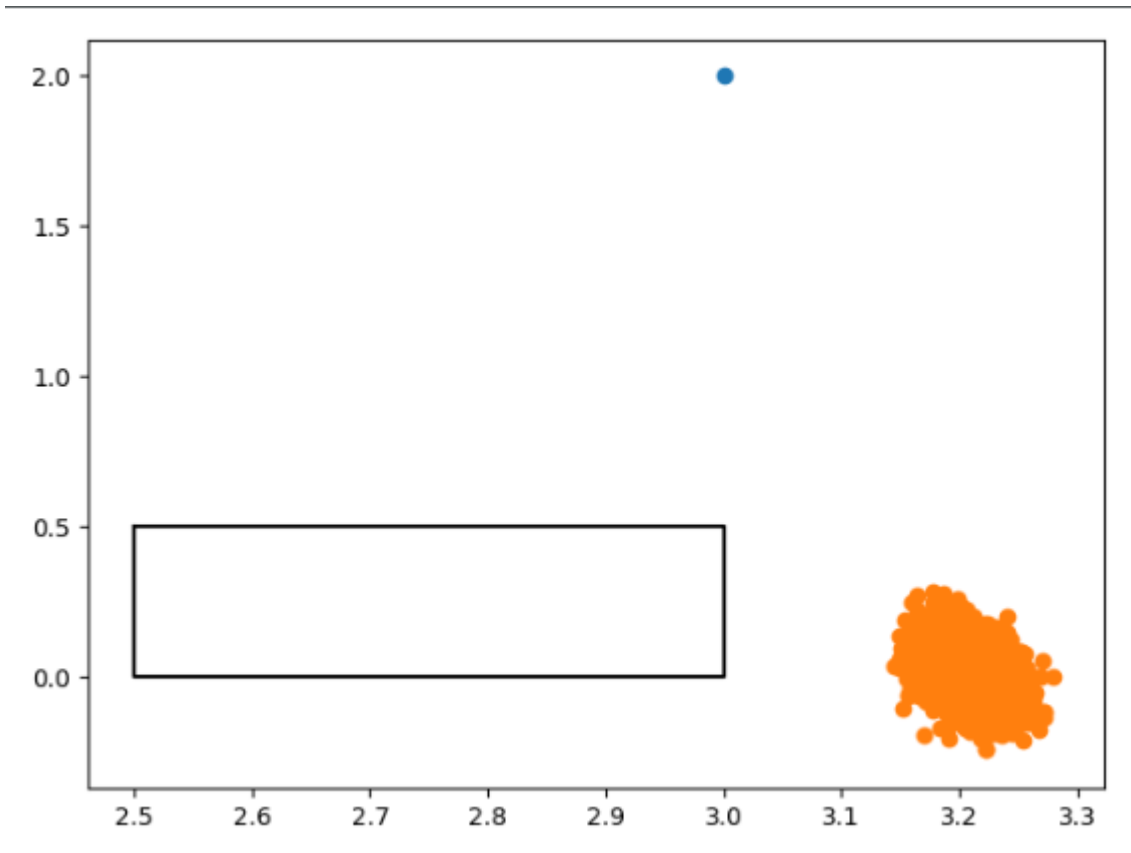
Q3





Q4





Lab

my: 11610127 郑浩

partner: 11610226 吕俊延

View ros topic:

rostopic echo tf:

```
z: -0.0106463073113
w: 0.999943326464
---
transforms:
-
  header:
    seq: 0
    stamp:
      secs: 1553937918
      nsecs: 742828523
    frame_id: "odom"
  child_frame_id: "base_footprint"
  transform:
    translation:
      x: 0.256054278535
      y: -0.0108510349723
      z: 0.0
    rotation:
      x: 0.0
      y: 0.0
      z: -0.0104717841162
      w: 0.999945169366
---
roscore: [localhost:11311/
Ctrl-C to shut down the process. Usage is <1GB.
Checking for updates. Usage is <1GB.
---
```

rostopic echo tf_static:

```
qtac@qp:~$ rostopic echo tf_static
transforms: 513939
513939 / 184.513939
513939 header: 513939
513939 seq: 0
513939 stamp: 513939
513939 secs: 1553937718
513939 nsecs: 837714112
513939 frame_id: "/camera_rgb_frame"
513939 child_frame_id: "/camera_rgb_optical_frame"
513939 transform: 513939
513939 translation: 513939
513939 x: 0.0
513939 y: 0.0
513939 z: 0.0
513939 rotation: 513939
513939 x: -0.5
513939 y: 0.5
513939 z: -0.5
513939 w: 0.5
---
73113
```

rostopic echo camera/depth_registered/image_raw:

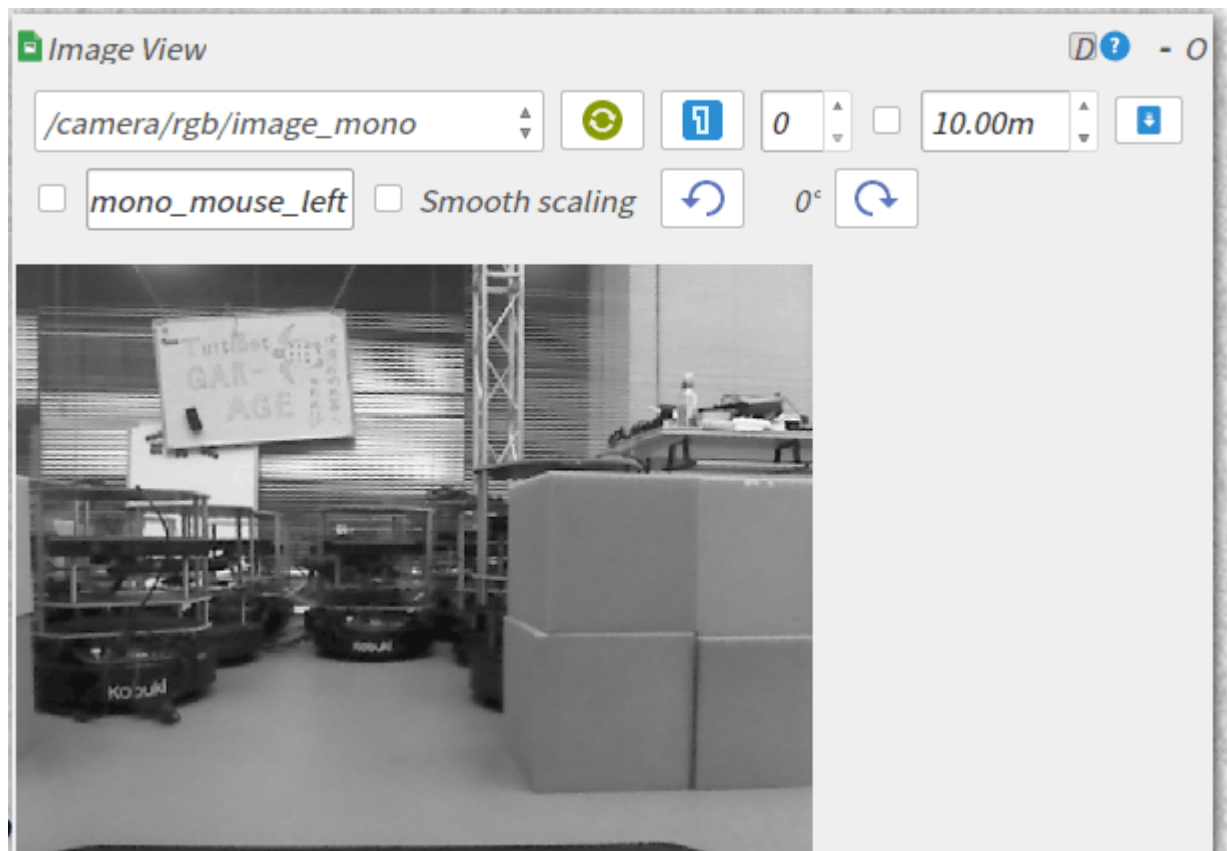
[illegible]

```
rostopic echo camera/rgb/image_color:
```

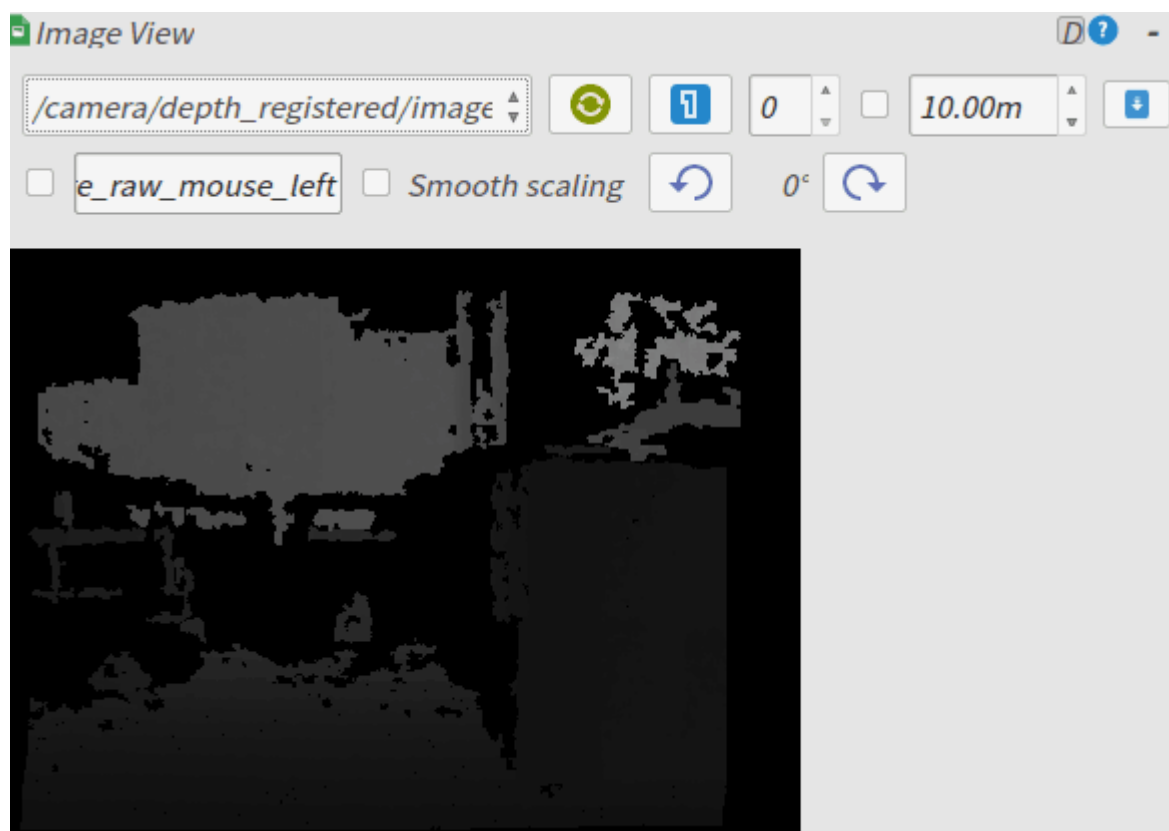
151	151	150	150	150	150	151	151	51	151	150	150	150	150	150	150
151	151	151	152	151	151	152	152	153	153	153	154	154	153	152	151
152	151	151	151	152	152	152	152	152	152	152	151	151	151	150	149
150	150	149	149	149	149	150	150	150	150	149	149	149	149	149	150
150	149	150	149	149	149	148	148	148	150	149	149	149	149	148	147
147	147	147	147	148	148	148	149	148	148	148	149	149	150	149	148
149	149	149	149	150	151	150	150	151	151	151	150	150	150	150	150
150	150	150	150	150	150	151	151	150	149	150	150	150	150	150	149
150	150	150	150	151	150	151	150	151	152	151	151	151	151	151	151
151	151	151	151	151	150	150	150	150	151	150	150	151	151	151	151
151	150	151	150	150	150	150	150	150	150	151	151	151	150	151	152
151	150	150	150	150	150	151	152	151	150	150	150	150	150	150	150
150	150	150	151	151	151	151	151	152	151	151	151	151	152	152	150
150	150	151	151	151	151	151	151	151	150	149	149	148	149	149	150
149	148	149	150	150	150	151	150	150	151	151	150	150	150	149	149
150	149	150	150	150	150	151	151	152	152	152	151	152	152	153	153
153	153	154	155	154	154	154	155	155	157	155	153	153	152	152	153
153	152	152	152	153	154	153	153	153	154	154	152	153	153	152	150
152	154	154	154	154	152	153	153	154	153	153	153	153	153	153	153
153	151	153	152	153	153	154	154	154	153	156	157	157	155	156	157
156	156	157	157	157	159	157	155	155	155	156	156	157	159	160	159
159	159	159	157	158	158	145	145	146	147	146	147	146	146	145	146
146	146	146	146	145	144	143	144	145	144	144	144	144	143	143	142
142	142	141	143	143	143	143	143	142	141	143	142	143	142	140	141

Explanation: The number is the RGB number of image.

```
rostopic echo odom:
```

depth:



color:

