

NTU FILTERED BAG:

===== INSTALLATION INSTRUCTIONS =====

1) Download the sensor data dataset "2019\_11\_15\_raw\_data.zip" (4.5GB) and the "odom\_and\_localization" folder from:  
<https://drive.google.com/drive/folders/1Ly1b5xEDHCUJcc5Mar7lc4PA9c4P8UQ8?usp=sharing>

2) Clone two packages to your ROS catkin workspace, by running the following commands:

```
cd ~/catkin_ws/src
git clone https://bitbucket.org/davidbsp/lslidar_c16
git clone https://bitbucket.org/davidbsp/semfire_dataset_ntu
```

3) Decompress the main dataset (20.2 GB) with the following comand:

```
"unzip 2019_11_15_raw_data.zip -d ~/catkin_ws/src/semfire_dataset_ntu/dataset/"
```

(This command must be run in the folder which contains the zip file.

Leave the decompression running - it will take a long time - on the background and move on to steps 4-6).

In the following two instructions, please replace "{ROS\_VERSION}" with the ROS version that you are currently running, usually "melodic" or "noetic":

4) install the lslidar decoder pkg (to allow for LIDAR pointcloud visualization) dependencies with this command:

```
sudo apt install ros-{ROS_VERSION}-angles ros-{ROS_VERSION}-pcl-ros ros-{ROS_VERSION}-diagnostic-updater ros-{ROS_VERSION}-eigen-
conversions
```

5) install the dataset runtime dependencies with this command:

```
sudo apt install ros-{ROS_VERSION}-urdf ros-{ROS_VERSION}-robot-state-publisher ros-{ROS_VERSION}-image-transport ros-{ROS_VERSION}-
image-transport-plugins ros-{ROS_VERSION}-depth-image-proc ros-{ROS_VERSION}-tf2-tools
```

6) Now compile your ROS workspace with these commands:

```
cd ~/catkin_ws
catkin_make
```

7) after 3) is finished, please verify that you placed \*all the downloaded datasets\* inside the folder "semfire\_dataset\_ntu/dataset"

8) run the dataset with the command:

```
"roslaunch semfire_dataset_ntu run_dataset.launch"          (for publishing sensor raw data)
```

For publishing localization/odometry information:

```
"roslaunch semfire_dataset_ntu run_dataset.launch with_odom_and_loc:=true"          (for odom/localization data)
```

and then...

```
"roslaunch semfire_dataset_ntu odometry_and_localization.launch"          (both odometry and localization TFs)
```

or...

```
"roslaunch semfire_dataset_ntu odometry.launch"
```

(just the odometry TF)

After everything loads, you should see the line below:

```
"[PAUSED ] Bag Time: 1573807399.538277 Duration: 0.000000 / 828.799365"
```

and you can safely ignore this one:

```
[ERROR] [1593449043.819104835, 1573807399.538276667]: Tried to advertise a service that is already advertised in this node [/rviz/-compressed/set_parameters]
```

Now press the space key to start the dataset!

9) visualize the data of the sensors in rviz (automatically loaded), and use "rostopic list" in the terminal to check the topics and "roslaunch tf2\_tools view\_frames.py" to see the existing transformation frames of the system.

You may want to change the fixed frame in rviz to check the data on a different coordinate system than the one attached to the robot (bobcat\_base).

10) now start developing your solution and test it on top of this dataset.

PLEASE DO NOT MODIFY THE EXISTING LAUNCH FILES. YOU SHOULD ADD YOUR OWN ONES!!!

===== RUNNING =====

repeat 8, and run together with your additionally created launch files/nodes.

If your PC is running slow, you can try lowering the dataset rate (e.g. "-r 0.5" instead of "-r 1" in the run\_dataset.launch file)