

Parameter Overview

May 21, 2021

Introduction

This file contains the parameters we tuned for each specific algorithm. All parameters, which we changed from the default values, are listed.

The provided datasets and groundtruth (rosbags and txts) can be downloaded here:

[General Dataset](#) and [Groundtruth General Dataset](#)

[Wheel Odometry Challenge Dataset](#) and [Groundtruth Wheel Odometry Challenge Dataset](#)

[Floor Camera Challenge Dataset](#) and [Groundtruth Floor Camera Challenge Dataset](#)

[RGB-D Camera Challenge Dataset](#) and [Groundtruth RGB-D Challenge Dataset](#)

[LIDAR Challenge Dataset](#) and [Groundtruth LIDAR Challenge Dataset](#)

The necessary transformations from camera image / camera imu to robot base are provided via [broad.py](#). Due to the fact that some algorithms require these transformations within a distinct time, we did not use the tf topic to provide this data. The [image](#) of the map as well as the [description](#) file in yaml format.

| Method | Parameters | Values |
|-------------|-----------------------------------|-------------------|
| RTABMap | frame_id | base_footprint |
| | rgbd_depth_scale | 2000 |
| | rgbd_odometry/Reg/Force3DoF | true |
| | rgbd_odometry/Odom/Strategy | 0 |
| | rgbd_odometry/Vis/CorType | 0 |
| | rgbd_odometry/Vis/CorGuessWinSize | 40 |
| | rgbd_odometry/Vis/MaxFeature | 5000 |
| | rgbd_odometry/Vis/EstimationType | 1 |
| | rtabmap/Reg/Force3DoF | true |
| | rtabmap/Reg/Strategy | 1 |
| | rtabmap/Optimizer/Slam2D | true |
| | rtabmap/Optimizer/Strategy | 1 |
| ORB-SLAM2 | Camera.fx | 927.7444458007812 |
| | Camera.fy | 928.2129516601562 |
| | Camera.cx | 655.3325805664062 |
| | Camera.cy | 361.226318359375 |
| | Camera.width | 1280 |
| | Camera.height | 720 |
| | Camera.bf | 75.014456792 |
| | ORBextractor.scaleFactor | 1.25 |
| | ORBextractor.iniThFAST | 20 |
| | ORBextractor.minThFAST | 6 |
| | ORBextractor.nLevels | 8 |
| | ORBextractor.nFeatures | 1000 |
| HECTOR SLAM | base_frame | base_footprint |
| | odom_frame | base_footprint |
| GMAPPING | odom_frame | odom |
| | base_frame | base_footprint |
| | maxUrange | 8.0 |
| | maxRange | 8.0 |
| | linearUpdate | 0.1 |
| | angularUpdate | 0.1 |
| | temporalUpdate | 1 |
| | resampleThreshold | 0.5 |
| | xmin | -30 |
| | ymin | -30 |
| | xmax | 30 |
| | ymax | 30 |
| | delta | 0.02 |
| | particles | 40 |
| AMCL | odom_model_type | omni-corrected |
| | max_particles | 3000 |
| | kld_err | 0.02 |
| | update_min_a | 0.20 |
| | resample_interval | 1 |
| | transform_tolerance | 0.5 |
| | laser_max_range | 8 |
| | laser_max_beams | 180 |
| | odom_alpha1 | 0.1 |
| | odom_alpha2 | 0.1 |
| | odom_alpha3 | 0.1 |
| | odom_alpha4 | 0.1 |