Deep RL Learning - Deep Reinforcement learning for robots

Christopher Leith

Abstract—In this project we create

Index Terms—Reinforement learning, Deep Learning, Robotics, ROS.

1 Introduction

MOBILE robots

2 Background / Formulation

Because

2.1 RTABMap Slam

In this project we demonstrate

- Wheel Odometry Measures the distance traveled be each wheel.
- Hokuyo Laser Rangefinder Mounted on top of the cylinder.
- RGB-Depth Camera Mounted on the front of the cylinder.

3 Configuration

Much Fig 1.

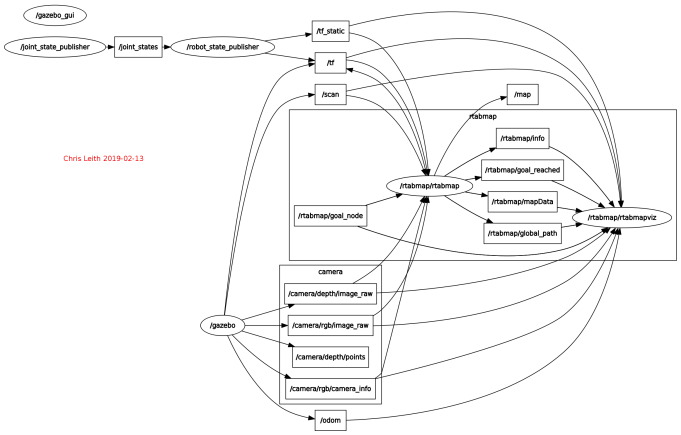

Fig. 1. CielBot nodes and topics ROS Graph

3.1 RTABMap Config

The configuration

3.2 Robot Config

The robot used in this project,

4 Results

Map generation was reasonable, but not perfect as detailed below.

4.1 Results - Kitchen and Dining World

From Run1 Fig 2

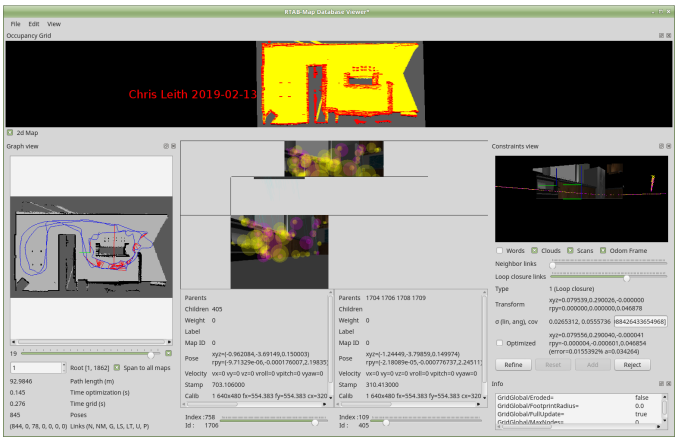

Fig. 2. Kitchen and Dining World DBView Run1

From Run2 Fig **??** it is seen that RTABMap was able to detect 46 loop closures and generate a recognizable 3D map. However, again some flaws are evident. For example it is evident that RTABMap was unable to detect the correspondence of the stool images and there are thus 'ghost' stool images.

5 Discussion

The maps

6 Conclusion / Future work

The project