

Ingenieurspraxis, Forschungspraxis, Bachelor's Thesis

Evaluation of Point Cloud Compression for Teleoperated Driving

This work can be done in German or English

LIDAR is one important sensor type for autonomous vehicles' perception. Human perception is mainly based on RGB data, in case of teleoperation captured by RGB cameras and transmitted to the remote operator through a communication network. In some situation a 3D representation of the scene might be helpful for the operator which could be achieved using LIDAR data. To avoid high transmission rate LIDAR data need to be compressed. Existing methods for point cloud compression [1, 2, 3] don't have their focus on automotive LIDAR data.

The objective of this project is to setup existing point cloud compression implementations and compare them focusing on automotive point clouds.

Tasks

- Setup available point cloud compression implementations
 - * ROS PCL [1]
 - * MPEG L-PCC [2] (available at MPEG Repo)
 - * MPEG G-PCC [2] (available at MPEG Repo)
 - * MPEG Anchor Implementation [3]
- Evaluate implementations in terms of
 - * Encoding time/complexity
 - * Compression rate
 - * Compression quality

Prerequisites

- Experience with ROS and Point Clouds
- Basic knowledge of C++ and Linux

Advisors

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