Master's Thesis

Detection of construction sites for instantaneously updating road map database based on high resolution LiDAR

Until now, maps in cars have been used mainly for navigation purposes, along with applications around points of interest. Current maps do not meet the requirement of real-time information (live maps) and do not provide enough information for autonomous driving (Seif and Hu (2016)). Especially when the road is with high traffic density and has changes

of certain infrastructures e.g. the adding of a construction or accident site etc. The miss of the above information has become a major drawback and is a key issue for in time and safe routing.

The aim of the master's thesis is using high resolution LiDAR to detect construction sites on the road and validate them to update the road map database (see figure above) instantaneously. There are three major questions to be investigated:

a. Identifying different types of construction sites and evaluating existing LiDAR-based methods used for detecting the different types.
b. Comparing and identifying features which ensures a correct detection of a e.g. construction site.
c. Implementing and evaluating a prototypical method for detecting and validating a e.g. construction sites on the road and updating the underlying database.

About LiangDao:
LiangDao is a fast-growing young startup since 2018 with 70 team members focusing on developing LiDAR based applications for autonomous driving as well as for smart cities in China and Germany. With the engineering knowledge of integrating multiple high precision sensors into vehicle and the permission to collect real world traffic data in China and Europe, LiangDao has built up a big data and software development center for ground truth generation using LiDAR algorithms, scenario detection and analysis as well as traffic simulation for development, testing and validation of autonomous driving.

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