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Business Domain
Geospatial Sector

Project Type
LiDAR Data Processing Solution,
Feature Extraction Solution,
Dedicated Team, Tech Partnership

Revolutionizing Road Survey Analysis: How LiDAR Technology Enabled 40% Time and Cost Savings with 3D Feature Extraction and Data Classification on a 275km Road

Client

A European company providing services in LiDAR and Digital photogrammetry data acquisition and processing.

Project

Preparing complex point cloud classification and automated feature extraction for a resource-intensive road survey project.

Objective

The Client aimed to reduce processing costs and speed up the delivery process of road survey projects by implementing advance processing algorithms and developing automated solutions for feature extraction.

Team Reinforcement

The Client needed an expert partner for LiDAR processing automatization to develop automated features extraction algorithms, based on combined ALS and MLS data. The task was delegated to the Offshore Dedicated Team®.

Challenge

The European company specializes in airborne and mobile LiDAR mapping, providing high-precision data®.

To ensure traffic safety and road maintenance, regular and thorough quality inspections are required. Visual inspection and point-based measurements are the mainstays of conventional road evaluation techniques. But they are time- consuming and cost ineffective.

The Client needed to quickly process the LiDAR data with industry-grade accuracy and develop automated algorithms for feature extraction. Moreover, the data had a lot of noise and needed additional processing.

Quick Facts

- 275km of road survey done with combined ALS and MLS LiDAR
- Complex point cloud classification with ~50 classes specific to road infrastructure
- Automated extraction algorithms for main road features were implemented

Technologies
TerraSolid

Solution

★ 01

Extracted features with an industry-grade level of accuracy can be used in road maintenance planning and developing.

★ 02

High-resolution DEMs can help with roadbed analysis to detect potential risks and areas in need of maintenance.

★ 03

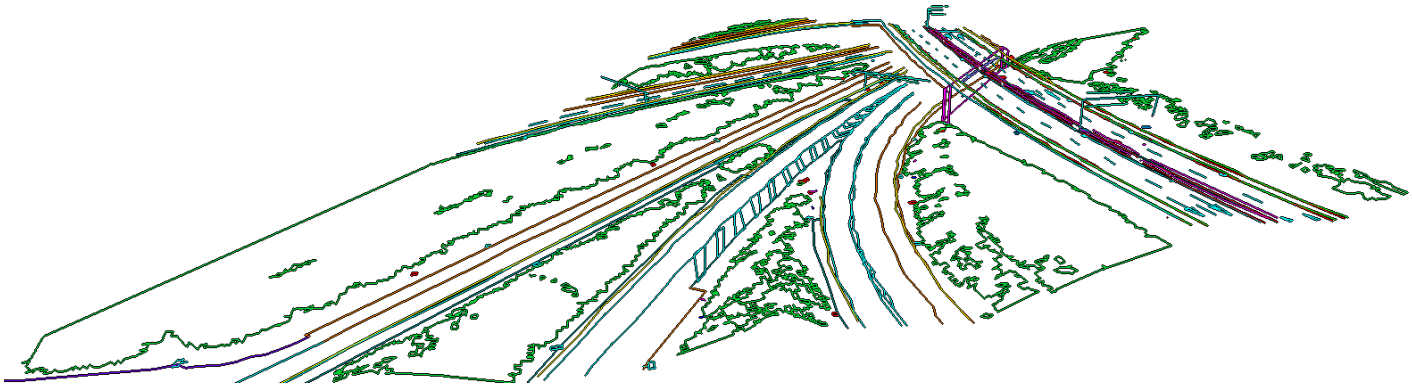
A classified point cloud could be used to analyze each road element separately in a 3D environment and detect all possible anomalies.

★ 04

Automated feature extraction algorithms can reduce processing times and costs by 40% for all road survey projects.

★ 05

The extensive LiDAR Data Processing expertise of the Offshore Dedicated Team® allowed for prompt project delivery at optimized costs.



Client Reference

“To meet the exceedingly strict requirements of the road survey project, we needed a highly specialized processing methodology. We were thrilled to discover a true collaborator in creating an all-encompassing LiDAR processing workflow that not only met our process needs but also helped with process automation.

Benefits and Results

- Classified road features can provide insights into the state of road elements and indicate the need for maintenance.
- Generated DEMs could be used for evaluating the roadbed condition.
- With the help of automation, processing costs were reduced by 43%.
- Extracted 3D features were used to create a comprehensive road infrastructure database.

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