

Counting beach visitors in LiDAR data

The CoastScan project:

Within the framework of the CoastScan project, a permanently installed laser scanner is measuring the topography of dunes and beach at hourly intervals at the beach in Noordwijk, compare Figure 1. The Riegl VZ6000 laser scanner is acquiring a large data set consisting of about 15 000 consecutive 3D point clouds. For more information, see <https://coastscan.citg.tudelft.nl/>



Figure 1. Permanent laser scanner at Noordwijk beach

Research goal:

To be sure that only the surface of the sand and dunes is used in further data processing and analysis, all fixed objects (buildings, trash cans, boats, etc.) should be removed from the data. Moving objects like people and dogs are more difficult to detect. Goal of the project is twofold: first, develop robust methodology to automatically and efficiently identify and remove temporary objects from the full set of 3D point clouds, and, second, to use the results of the method to analyze the amount of people visiting the beach, e.g., by highlighting seasonal differences or relate day-to-day differences to the weather situation. Results of a preliminary method that can serve as a starting point are shown in Figure 2.

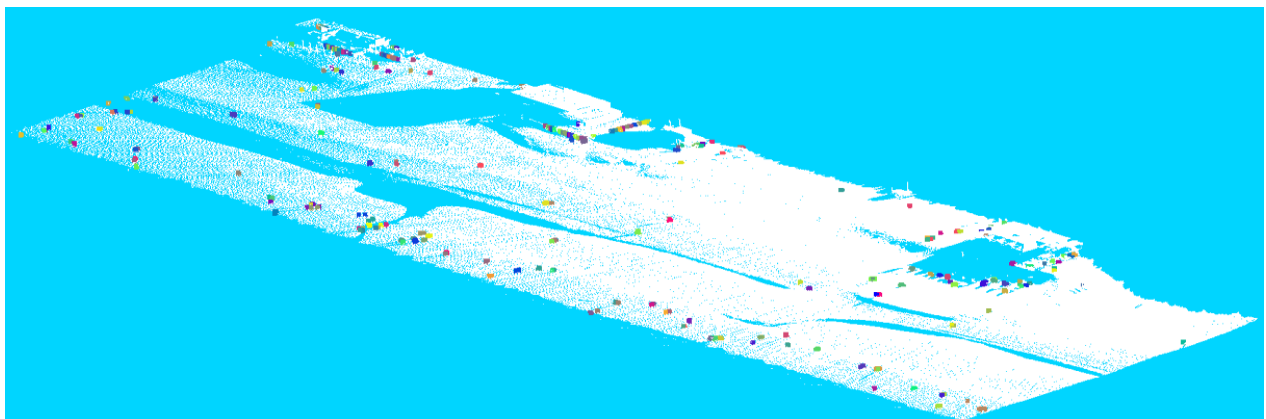


Figure 2 Point cloud of the beach with detected people marked in different colors (by C. Mulder and D. Hulskemper)

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