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# CURB-BASED STREET FLOOR EXTRACTION FROM MOBILE TERRESTRIAL LIDAR POINT CLOUD

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Abstract. Mobile terrestrial laser scanners (MTLS) produce huge 3D point clouds describing the terrestrial surface, from which objects like different street furniture can be generated. Extraction and modelling of the street curb and the street floor from MTLS point clouds is important for many applications such as right-of-way asset inventory, road maintenance and city planning. The proposed pipeline for the curb and street floor extraction consists of a sequence of five steps: organizing the 3D point cloud and nearest neighbour search; 3D density-based segmentation to segment the ground; morphological analysis to refine out the ground segment; derivative of Gaussian filtering to detect the curb; solving the travelling salesman problem to form a closed polygon of the curb and point-inpolygon test to extract the street floor. Two mobile laser scanning datasets of different scenes are tested with the proposed pipeline. The results of the extracted curb and street floor are evaluated based on a truth data. The obtained detection rates for the extracted street floor for the datasets are 95% and 96.53%. This study presents a novel approach to the detection and extraction of the road curb and the street floor from unorganized 3D point clouds captured by MTLS. It utilizes only the 3D coordinates of the point cloud.

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