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HIERARCHICAL ALGORITHM IN DTM GENERATION AND AUTOMATIC EXTRACTION OF ROAD FROM LIDAR DATA

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Abstract. Growing demand for an efficient land use above and below the ground is motivating cadastre and land management systems to move from traditional 2D systems toward three dimensional ones. Airborne laser technology offers direct acquisition of dense and accurate 3D data. In order to get 3D road this paper proposes a hierarchical algorithm to extract terrain point from LIDAR data. We stratify the raw LiDAR data according to the height, judge terrain points and non-terrain points by the connectivity. In the case of road network, it indicates the morphological characteristics of network structure with a certain length continuous strip and small difference in intensity. All these information, including elevation information, the intensity information, the morphological characteristics and other local features, are used for extracting the road network from DTM. Local morphological filtering method is implementing for finding clear boundaries and rich details of the road profile. Following the presentation of the algorithm results for this approach are shown and evaluated

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