

A METHOD OF BUILDING PLANES EXTRACTION FROM LIDAR POINT CLOUDS

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ABSTRACT:

Airborne laser altimetry is a very popular technique for produce digital elevation models. The high density 3D data make it possible to extraction plans for registration of LiDAR points and photogrammetric datasets, 3D building model reconstruction and so on. This paper presents a method to extraction roof faces from raw airborne lidar point clouds. Firstly, K-D tree index should be constructed on the non-ground points after classification the LiDAR point clouds. Nearest neighbor search method is used to realize building segmentation. Then, the well-known 3D Hough transform is used for the extraction of planar faces from each building, and nearest neighbor search is used again to distinguish different roof faces with a same plane equation. To deal with the situation that the planar region with most points does not coincide with a roof face, Gauss Sphere Normal vector statistic is used to extract the right plane. Then least square fit method is used to get more precise plane formulation. By this method, roof faces of gable roof buildings and other complex buildings can be extracted exactly.

TOPIC: Lidar and laser scanning

ALTERNATIVE TOPIC: Lidar and laser scanning