

Method description:

The 3D point cloud is first segmented into voxels based on octree, which are then characterized by several attributes transforming them into super-voxels. The Mean-Shift algorithm is introduced into the selection of the initial seed points of the super-clustering, which makes the generated super-voxels more robust.

Then, the super-voxels are segmented using a combination of criteria such as Local convexity criterion, Sanity criterion and Connectivity criterion.

Finally, roofs are recognized from the segments by using the multi-level classifier, which combines multi-features. The classifier is mainly composed by four filter layers and nine characteristic attributes.