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Segmentation algorithm for surface reconstruction according to data provided by laser-based scan point(Conference Paper)

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The paper presents the results of the elaboration of algorithms of image segmentation and segmentation of the surface based on the calculation of the local geometric properties of the surface (the method of the segmentation of the point cloud obtained at the stage of rough scanning of the surface). The problem of reconstructing a surface from a spontaneous point cloud has been solved to create a CAD model based on laser based scan data of the object. The development of the method of automatic reconstruction of accurate and piecewise smooth surfaces from spontaneous 3D-points were carried out for designing an automatic system of path planning for an industrial robot manipulator. The proposed procedure of automatic segmentation is based on the local analysis of the Gaussian K and mean H curvatures, obtained by applying a non-parametric analytical model. © Springer Nature Switzerland AG 2019.