

Traversability Analysis for a Mine Safety Inspection Robot

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Abstract

A new fast algorithm for traversability analysis of an arbitrary three-dimensional point cloud is presented. The algorithm segments a three-dimensional point cloud into vertical sections; each of which is clustered into bins and further analysed to determine potentially drivable surfaces. Connectivity between neighbouring drivable surfaces is used to determine obstacle, drivable, unsafe, unreachable and frontier cells. The algorithm is successfully applied to determine a traversability map for a Mine Safety Inspection Robot in an artificial stope.