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Title: Urban scene perception and environment model synthesis from multisensorial spatial data

Keywords: 3D machine perception, Lidar, sensor fusion, object recognition, 3D shape and texture inpainting

Abstract:

New machine perception and geo-data processing techniques are presented to facilitate the joint exploitation of onboard measurements of mobile robots, and environmental data obtained by various 3D mapping technologies in urban environment. The introduced methods comprise Lidar based real time self-localization and change detection, fully automatic online camera- Lidar calibration, and machine learning based realistic virtual augmentation of initially low resolution and incomplete 2D images and 3D point cloud models.