

BUILDING MODEL RECONSTRUCTION WITH LIDAR DATA AND TOPOGRAPHIC MAP BY REGISTRATION OF BUILDING OUTLINES

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ABSTRACT:

This study integrates LIDAR data and topographic map information for reconstruction of 3D building models. The procedure includes feature extraction, registration and reconstruction. In this study, the tensor voting algorithm and a region-growing method with principal features are adopted to extract building roof planes and structural lines from LIDAR data. A robust least squares method is applied to register boundary points of LIDAR data with building outlines obtained from topographic maps. The registration accuracy is about 11 cm in both x- and y- coordinates. This results of the registration method developed here are satisfactory for the subsequent application. Finally, an actual LIDAR dataset and its corresponding topographic map information demonstrate the procedure for data fusion of automatic 3D building model construction.

TOPIC: Lidar and laser scanning

ALTERNATIVE TOPIC: Data fusion and data assimilation