A graph edit dictionary for correcting errors in the roof topology graph

In the task of 3D building reconstruction, we face the problem of recovering a roof topology graph (RTG) after it has been garbled by passage through a noisy channel. Many building reconstruction methods base on the roof topology graph, and the errors will seriously affect the final results. We design a strategy based on a graph edit dictionary to automatically identify and correct the errors in the input graph. The graph edit dictionary stores the example errors, one of which is chosen to be the 'symposium' of the input graph by comparing their similarities. The corrected graph is used to integrate building structures, search primitive buildings, and guide building reconstruction. Experiments show the models reconstructed from the RTG without and with corrections.

Our work focuses on the building reconstruction, and assumes the input laser points for reconstruction are already well detected. Because of this we need to manually select the buildings, and obviously in ITCX some were missed. For ITCX_G1 and ITCX_G2, the lost buildings are added. Therefore, comparing to the results in ITCX, the completeness of models in ITCX_G1 and ITCX_G2 is improved a lot. The roof topology graphs are interactively corrected for test ITCX, while the graphs for ITCX_G1 have no correction and the graphs for ITCX_G2 are automatically corrected by the graph edit dictionary. As this dataset only has a few buildings whose RTGs need to be corrected, the models of ITCX_G2 do not improve too much comparing with the ones of ITCX_G1.