

AN INTEGRATED FRAMEWORK FOR RECONSTRUCTING FULL 3D BUILDING MODELS

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ABSTRACT:

Nowadays, in contrast to the increasing needs for 3D building models reconstructed with both indoor and outdoor structure and semantic information, the current state-of-the-art methods are not able to reconstruct the indoor and outdoor of buildings as a whole in one workflow. This paper proposes an integrated framework for the reconstruction of full 3D building models, in which both 3D indoor and outdoor model are reconstructed in a collaborative manner by fusing airborne laser scanning (ALS) data, terrestrial laser scanning (TLS) data and architectural plans. As a proof of concept, a preliminary test to reconstruct integrated 3D facade and indoor model is presented. First, based on plane sweep technique, a semantic and geometric information integrated point matching based method is developed to register 2D floor plans with TLS points. Then based on the registration, 3D facade model and indoor model are reconstructed and integrated simultaneously. The test results demonstrate the feasibility of the proposed framework.

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