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Automatic modelling of building façade objects via primitive shapes

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Abstract. This paper presents a new approach to recognize individual façade objects and to reconstruct such objects in 3D using MLS point clouds. Core of the approach is a primitive shape based algorithm, which introduces building primitives, to identify the façade objects separately from other irrelevant objects and then to model the correct topology. The primitive shape is identified against defined different primitive shapes by using the Douglas-Peucker algorithm. The advantage of this process is that it offers an ability not only to model correct geometric shapes but also to remove occlusion effects from the final model. To evaluate the validity of the proposed approach, experiments have been conducted using two types of street scene point clouds captured by Optech Lynx Mobile Mapper System and Z+F laser scanner. Results of the experiments show that the completeness, correctness, and quality of the reconstructed building façade objects are well over 90 %, proving the proposed method is a promising solution for modelling 3D façade objects with different geometric shapes.

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