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FROM POINT CLOUD TO 3D MODEL, MODELLING METHODS BASED ON ARCHITECTURAL KNOWLEDGE APPLIED TO FORTRESS OF CHÂTEL-SUR-MOSELLE (FRANCE)

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Abstract. 3D survey techniques applied to buildings such as photogrammetry and laser scanning produces a volume of data very important. Upon acquisition, the issue of data management greatly influences the acquisition parameters and production data. Contemporary tools usually allow acquiring data sets denser than necessary without taking a very long acquisition times. We are interested in modeling from 3D data. There is no question here of mesh from the point cloud, but to model space according to their constituent elements. Data having a high density provide a rich description of the object. The issue of simplification raises the problem of loss of means of describing the object of interest. The final model, to keep the quality of description of point clouds, must remain very close to the initial data. This constraint derives the inverse problem. It is to be faithful to the data without performing mesh. The purpose of the study must remain the goal of modeling. Assumptions used to derive simple geometric primitives, which are assembled together the simplified model. The resulting model consists of surface distance for 92% of them within 5 cm of the point cloud. The model thus created is faithful to the cloud but also the rules of construction of the building which he prefigures representation.

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