

## **Abstract**

The thesis deals with the concept of level of detail and its use in 3D GIS. The aim of this work is to design a data structure that will allow continuous rendering of discrete 3D building models with different levels of geometric detail, which were created by generalization method based on mathematical morphology approach. The proposed solution creates links of corresponding geometric primitives of models at different level of detail at first and then reconstructs them using the extrusion method. The data structure created in this way is able to generate and render any model, including intermediate models, which are represented as slices through the data structure across the axis of geometric detail.