Abstract

This diploma thesis deals with the topic of automatic classification of buildings. The main goal of this diploma thesis was to design an algorithm for the identification of building types for the purposes of cartographic generalization. For the purposes of this diploma thesis, a total of six types of development were defined with respect to different generalization of individual types on ZM 50. The first part of the proposed method is represented by an algorithm for segmenting buildings into clusters based on the use of already generalized road network and DBSCAN algorithm. The partial goal of this diploma thesis was to compare classifiers from the field of machine learning and neural networks and at the same time to compare classifiers using descriptive characteristics with classifiers using visual assessment. The resulting classifications were evaluated using data from a manually selected training set and using an algorithm comparing the resulting type of development with the type of cartographic representation used to represent the development on ZM 50. The whole method was implemented in Python using Arcpy, Scikit-learn and Tensorflow libraries. Testing took place on elements from the ZABAGED and Data50 databases.

Keywords: Generalization of built-up areas, Classification, Machine learning, Neural networks, ZABAGED, Data50