

## **Abstract**

This master thesis is focused on cartography generalization of a rivers using collapse and partial collapse method with the usage of straight skeleton data structure. The proposed method was designed for large scale maps in geographical view and for medium scale maps in cartographic view (till 1 : 100 000). The thesis is focusing on width of a river as stand alone criteria for generalization decision. The presented solution represents set of a criteria which decides on generalization of a river. The presented thesis also solves problematic situations that exist on a river such as islands, junctions, shoulders or bifurcation.

The thesis also includes proposed generalization algorithm which is using straight skeleton data structure. The algorithm is implemented in C++ programming language in Microsoft Visual Studio IDE. The algorithm uses external libraries Qt and CGAL (Computational Geometry Algorithms Library) for functioning. Algorithm results are saved in ESRI geodatabase with the usage of Python 2.7 programming language and external library ArcPy.

Water areas from ZABAGED were chosen as appropriate data for testing. Achieved results of generalization are presented on test data for various scales and they are compared with base maps of Czech Republic.

**Keywords:** digital cartography, cartography generalization, straight skeleton, collapse, partial collapse, GIS