

Abstract

Automated recognition of selected terrain features from their cartographic representation.

This diploma thesis is dedicated to automatic classification of selected terrain shapes and their cartographic representation. The main aim of this thesis is to design methodological approach for automatic recognition of terrain shapes (hills and valleys) with the use of Machine Learning (Deep Learning). The first part of suggested method divides rough terrain segmentation into two categories, which will be then classified with convolutional neural network. The second part of the thesis is dedicated to the very classification of pre-segmented terrain shapes using Machine Learning. Both parts of the processing are using photos SRTM30 as an input data. The whole proposed method was developed in Python programming language with the usage of Arcpy, TensorFlow and Keras libraries.

Keywords: Digital cartography, GIS, terrain shapes, Machine Learning, Deep Learning, recognition, classification, segmentation