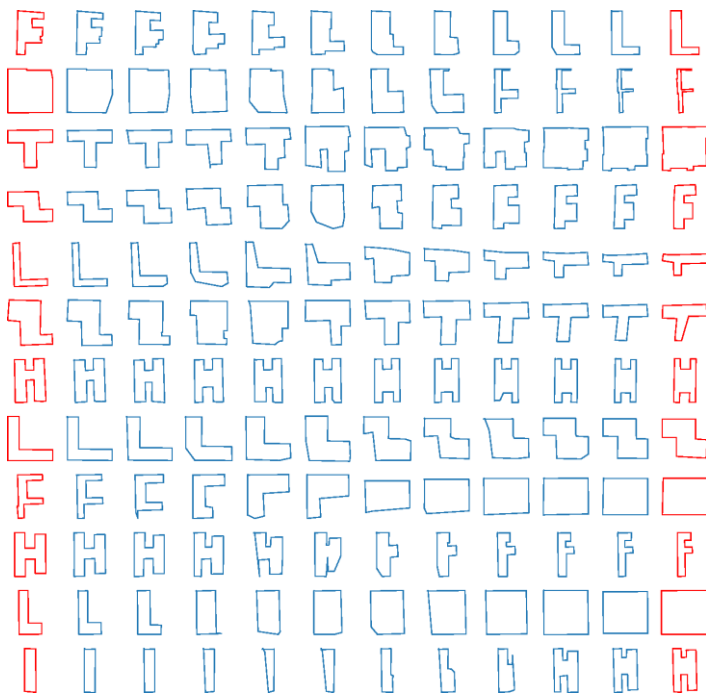




## Master thesis

# Cartographic Generalization and Embedding of GIS vector data with Deep Learning



Cartographic generalization is a fundamental task in cartography that involves producing smaller-scale yet meaningful maps from large-scale spatial data. One of the most common techniques used to achieve this is simplification, which poses interesting challenges when it comes to automation.

In recent years, deep learning models have been increasingly utilized in cartographic generalization research. Unlike traditional methods that rely on complex rules and thresholds, deep learning approaches are more flexible and can reduce the need for manual inter-

vention, leveraging the vast amounts of training data from existing map series.

This thesis aims to develop a deep learning model, either a sequence-based model like *Transformer* or a graph-based model such as *Graph Convolutional Neural Network*, to generalize GIS vector data while also providing meaningful embeddings for vector data of varying complexity. Such information is useful for better understanding the geometry features of GIS objects in the next step.

The topic requires a basic programming skill with PyTorch, as well as familiarity with the basic computer vision tools in Python.

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