



Road Network Generation using AI

Master's Thesis

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Introduction and Problem Description

Analysis and synthesis of networks (or graphs) is challenging due to the inherent complex nature. Deep learning is extensively applied for the study of networks in molecule identification, social network link prediction etc. To get an idea of the terminology and recent developments in this area please refer [1] [2]. Authors of [3] [4] used Generative Adversarial Networks (GANs) to create road networks that reflect the properties of an input road network. Likewise, authors of [5] describe a method based on RNNs.

The goal of this thesis is to explore AI graph synthesis methods to find a suitable approach for road network generation. The methods can be applied to some of the real world networks obtained from OSM. A synthetic road network generation pipeline complemented with a synthetic population will provide a good playground for mobility, privacy and communication research without compromising user-privacy.

Task Description

- Literature survey about current AI based graph generation methods.
- Find a feasible method that can be used for road network synthesis.
- Compare the methods and summarize the findings.

Requirements

- Familiarity with AI
- Good coding skills in Python

References

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