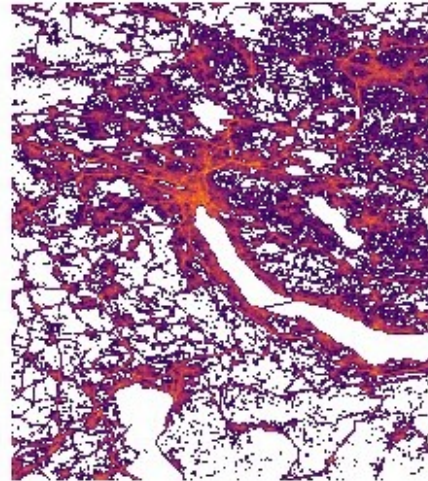




Traffic4cast with GNNs

Traffic4cast is an annual competition designed on forecasting traffic on city road networks in major cities all over the world. It is a benchmark designed with the goal to predict traffic given sparse spatial and temporal vertex data of the road network. The current 2022 edition of the competition can be found [here](#).

In this thesis, we want to explore the capabilities of Graph Neural Networks (GNNs) for traffic forecasting. The main advantage of GNNs is that their architecture can directly be applied to the graph representation of the map and therefore exploit its structural properties. Therefore, they should have an advantage compared to more traditional architectures. Nevertheless, many submissions of past competitions still heavily rely on convolution neural networks in their approaches. Our goal is to have a look at both past and current instances of the Traffic4cast competition. Among other things, we want to analyse the previously proposed solutions and check how we could improve them and come up with new approaches. The main aim is to apply GNNs and figure out how we need to modify or adjust current techniques for the forecasting of temporal traffic data.



Requirements: Strong motivation, knowledge in graph theory and machine learning, as well as good coding skills. Prior experience with GNNs or Machine Learning is a big advantage. We will have weekly meetings to discuss open questions and determine the next steps.

Interested? Please contact us for more details!

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