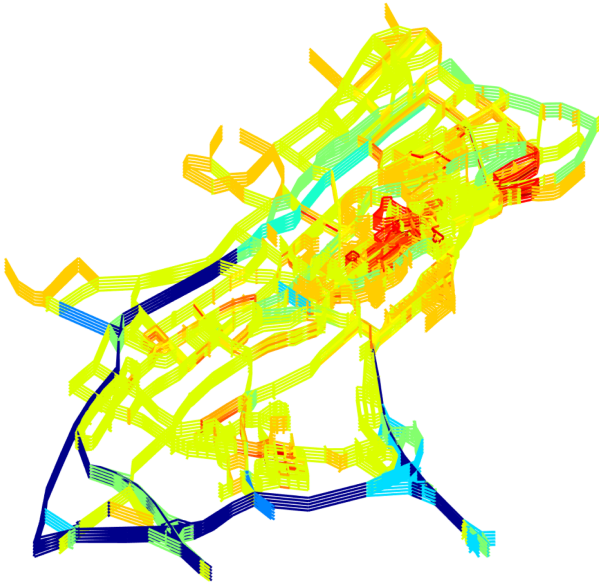


Network-wide traffic flow estimation and prediction



Problem description

Traffic predictions play an important role in developing a reactive and even proactive transportation system. There have been various studies that try to predict the traffic variable of a given corridor. However, the problem becomes more challenging when looking at network-wide predictions. Some of these challenges are: incorporating the spatiotemporal characteristics of the traffic, state estimation, missing data handling, and the sheer dimensionality of the data. *Thus, given the importance and challenges of predictions, the objective of this thesis is to develop a data-driven method for network-wide traffic predictions using readily available traffic data.*

This thesis is done within the context of The Hague. The Hague is interested in estimating and predicting the traffic flow in their inner-city roads. This is to augment their current road safety model (developed in corporation with DOK data), which incorporates road characteristics such as geometry, speed limit, parking facilities, etc, with traffic data. The road safety model is important to keep the growing city liveable and the roads safe and accessible. Thus, the student gets a unique opportunity to work together on a relevant real-world application with the municipality and a young company.

Assignment

- Review state-of-the-art in network-wide traffic estimation and prediction
- Analyse the existing dataset to estimate the traffic flow at missing and unknown locations;
- Build a data-driven method for network-wide traffic flow predictions;

During the assignment there will be support from mobility experts of the municipality and data-science support from DOK data. This thesis includes a **paid internship** at the municipality of The Hague and a young start-up.

Candidate

- Should have coding skills in Python/MATLAB
- Should be comfortable with working with data

Research group

Transport & Planning department + Gemeente Den Haag

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