

Generating Multimodal Urban Traffic Flow for Validating Bayesian Data-fusion Models

Visualising urban traffic flow can have a multitude of advantages. City council can add bike lanes in streets frequented by cyclists. Real-time information can aid emergency services in avoiding heavy traffic. In an urban context data sources are abundant: telecom data, Wi-Fi scanners, smart cameras among others. Hydrodynamical as well as Bayesian data-fusion models are developed to fuse this indirect information as to predict the urban traffic flow¹². While they seem to work qualitatively, due to a lack of a validation set it is hard to quantify the prediction power of these models. Obtaining such a validation set is costly and time expensive. Simulating multimodal traffic flows and generating validation datasets would be paramount in validating data-fusion models. In a simulation setting virtual data sources can be added easily which, depending on their performance, could lead to suggesting the placement of sensors in the real world. The aim of this project is to generate realistic and suitable multimodal datasets with the goal of validating and improving data-fusion models.

¹ CityFlows: one view on multimodal flows in the city <https://www.imeccityofthings.be/en/projecten/cityflows>

² Emile Aerts, (2021), Masterthesis, Ontwikkeling van een Bayesiaans datafusie-model voor de visualisatie van verkeersstromen.