

Tackling Traffic Congestion: Modelling, Analysis & Prediction

Maarten Houbraken

Information Technology, Ghent University

Supervisor(s): Mario Pickavet, Pieter Audenaert

Traffic jams... Nobody likes them, yet every day, our roads are becoming more congested and traffic jams get longer. While public transportation helps to keep people off the road, its not always a feasible option. To help people avoid getting stuck and frustrated, we need to inform them about accidents and other problems on the road so they can adjust their travel plans.

To inform people, we need a good view on the traffic state. This requires a good understanding of traffic dynamics and up-to-date traffic information. This information is usually collected by static road-side sensors which have the disadvantage of only monitoring a fixed location. To monitor the entire road network, we can take advantage of the digital revolution by tracking mobile navigation devices. This yields information on all roads we travel on and enables us to monitor traffic state in real-time.

Using this information, we can build a model of our road network to evaluate policies and get answers to questions like "What's the impact of section control?" or "Does 'blokkrijden' work?". By deepening our understanding of the underlying traffic dynamics, we can ultimately even predict traffic flows and guide people home without traffic jams.