

# Traffic flow simulation: who takes the fast lane?

Student project Applied Mathematics

Many road users spend lots of valuable time on congested roads. New infrastructure may be built, but often, a more efficient use of already available roads is a more economic and sustainable solution. Therefore roads and traffic needs to be managed, which in turn needs accurate and fast predictions, based on numerical simulation of traffic flow. For an overview of traffic flow modelling, have a look at Van Wageningen-Kessels et al (2015, EURO JTL) Genealogy of traffic flow models.



We have developed a lane distribution model describes and predict how a flow of different types of vehicles (e.g. cars and trucks) would distribute itself over the multiple lanes of a freeway (e.g. only trucks on the outer lane and only cars on the other 2 lanes, or cars on all lanes, but mixed with trucks on the outer 1 or 2 lanes). So far, the lane distribution model has only been developed for very simple static problems.

We invite students to incorporate this model into a (dynamic) simulation, using existing or new numerical methods. This will help us finding out how lane distribution actually influences the traffic flows, whether the model is realistic and if it could be implemented to use in a traffic control system.

If you want to contribute to this project, or if you want to find out more, please contact:

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Numerical methods for crowds