VACANCY INTERNSHIP PROJECT

We are looking for students interested in carrying out their master thesis project at DAT.Mobility and TU Delft

Comparison of macroscopic dynamic traffic assignment models

Recently, the interface between the Matlab-based dynamic traffic assignment model MARPLE and OmniTRANS transport planning software was updated. This interface provides a framework for DTA modelling that allows the usage of models or components written in Matlab (such as MARPLE) together with OmniTRANS data (e.g. matrices, networks), components (e.g. demand models, junction modelling, matrix calibration) and functionality (e.g. the OmniTRANS GUI, its PostGreSQL database or its Ruby job engine).

Internship assignment

Research focuses on comparison of the Matlab-based implementation of the Link Transmission Model (LTM) by Willem Himpe[1] with the Matlab implementation of MARPLE using the OmniTRANS interface. This allows for a direct comparison of the functionality and properties of both propagation models. The most important points of interest are the behavior of the models with respect to spillback effects and the effect of intersections in urban areas.

The comparison should be done in two steps. Firstly, a methodological comparison using theoretical test networks should be conducted to isolate and qualitatively describe the individual differences. Secondly a (small) case study using a realistic network from an existing strategic transport model combined with (big) data (traffic counts and observed travel times and speeds from floating car data) should be done to quantitatively describe the differences between the models in a realistic setting.

(Illustrative) example of a comparison of modelled and observed speedratio's (colours) and flows (bandwidths)

If time allows, the comparison could be extended to include also the 2nd order Cell Transmission model (MADAM) and/or the event based Generalized Link Transmission Model (eGTLM), that are also available in OmniTRANS.

Research group / information

DAT.mobility Deventer / TU Delft

Daily supervisors: Ir. Luuk Brederode (DAT.mobility, TU Delft) / Dr. Henk Taale (Rijkswaterstaat, TU Delft). When interested in this internship assignment, please contact Ir. Luuk Brederode (lbrederode@DAT.nl, 0627369830)

[1] http://www.mech.kuleuven.be/en/cib/traffic/downloads

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