How the ITERATE driver model can improve micro simulation

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Modelling driver behaviour has been an endeavour developed since a number of years. Several approaches have been generated following different theoretical background with the goal of enabling to predict the activity and response of human beings in control of a vehicle operating in dynamically changing environments.

Based on experimental studies carried out on portable simulators including almost 300 subjects in five different countries, possibly making it the largest controlled experiment in the transport domain, a driver model has been developed, tested and validated. The driver model encompasses numerical expressions that cover differences in driver behaviour depending on driver attitude; state; experience; culture and workload.

In this paper, the simulation tool resulting from the research work and experimental activity is presented. The basic theoretical framework is briefly introduced and the simulation approach is discussed in detail, showing the numerical implementation of driver behaviour. The paper further shows how the model can be used in micro simulation applications to allow for micro simulations of driver support systems that take into account the variety of driver behaviour. Potential benefits of driver support systems are largely dependent on how the drivers make use of the systems. The work presented thereby contributes to increasing the reliability of micro simulation based studies of driver support systems.