

Identifying the driver performance

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Abstract

As a result of the increasing road safety and the reduced number of accidents, the research and development of motor vehicles centres more and more on the driver. This is due to the fact that, apart from the vehicle condition, the driver and his actual ability to drive a vehicle safely are essentially important for avoiding accidents.

The current research approaches of identifying the driver performance (DP) can be divided into two methods, the direct and the indirect method. The direct methods are connected with additional sensor systems which monitor the driver or his actions directly. The indirect method includes all approaches that allow conclusions about the driver performance by acquiring parameters and their time changes, which specify the interaction between driver, vehicle and road (DRV parameter space).

In accordance with the article, two approaches of the indirect method are introduced and the respective results are presented. The first approach is based on data obtained from a track monitoring system that detects how the driver keeps the vehicle, in relation to time, in the lane. By means of the determined lane keeping behaviour, conclusions about the current driver performance can be drawn. Lane deviation as well as its percentage in relation to time is a measure of driver performance.

A second approach of the indirect method includes identifying the driver performance from the driver response characteristics. The parameters describing the control loop driver/vehicle/road have to be considered for this purpose. The identified driver parameters and their time changes are used as input parameters for rating the driver performance.

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