三車互動情境下大客車跟車駕駛行為之模擬分析

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摘要

The experimental scene of bus car following behavior simulation in the past studies was always designed to display only one small vehicle in front of the following bus. However, since a bus' s driver seat is higher than that of a small passenger car, a bus driver could see two or more vehicles in front of the bus when two or more vehicles drive in front of the bus. Therefore, two small vehicles must be designed to drive in front of a following bus to develop a three vehicles interaction experimental scene in the bus car following simulation scenario. This study uses a bus driving simulator to develop a three-vehicles-interaction simulation scenario of freeway straight road section bus car following and experiment the bus drivers car following simulation. Four types of bus car following stimulus-response models include the speed difference base, the fifth generation GM model base, the integration of the fifth generation GM model and the speed difference base, and the integration of the fifth generation GM model and vehicle spacing base are developed through the experimental data collection and analysis. Each type of the bus car following stimulus-response models includes four equations distinguished by different response time delay (0.5, 1.0, 1.5, 2.0 seconds). By comparing the calibrated parameters' value and analyzing the estimated accumulating driving distance error with the experimental driving distance of the developed stimulus-response models, the integration of the fifth generation GM model and the speed difference base with time delay 0.5 seconds stimulus-response equation is better than other equations.

關鍵字：Bus, Car Following, Three-Vehicles-Interaction Simulation Scenario, Driving Simulator, Stimulus-response Model.