Exploring the Vehicle-Pedestrian Crash Severity Factors Based on the In-car Black Box Recording Data

This study investigated the main factors affecting the crash severity of vehicle-pedestrian crashes on urban arterial roads using the video recording data collected by an in-car black box device. While many previous studies used the interviewed data collected by police officers/witnesses which might lead the subjective and erroneous understandings regarding the crash situations, the in-car black box recording data is a more reliable data source by directly observing the crash situations. This black box video-recording data are advantageous for the safety studies by providing not only the video image information, but also the speed information measured in real-time including before-and-after a crash occurs. By analyzing these black box data, this study defined new reasonable independent explanatory variables affecting the vehicle-pedestrian crash severity which could not be identified by the conventional crash report-based method. A Multiple Indicators Multiple Causes (MIMIC) model was used to investigate the relationship between the explanatory variables and the crash severity. It turned out that the crashes involved with pedestrian’s failure of watching a vehicle approaching, pedestrian’s jaywalking, elderly (more than 65 years old), vehicle’s excessive speed (more than 60 km/h), driver’s failure to immediately stop, a limited vision of drivers, and the night period resulted in more serious crash severity. Finally, this study emphasized the potential of individualized black box video recording data for the purpose of...
analyzing the crash severity by extracting additional explanatory variables. Also, regarding the fact that these new variables have statistically significant relationships with crash severity, the Black box video recording data-based crash analysis method is promising in analyzing the factors affecting the crash severity. The utility of this new crash analysis data source (Black box video recordings) is expected to be beneficial when a new transportation policy is established in the purpose of reducing pedestrian crash severity.

Stichworte: Blackbox, event data recorder, pedestrian crash severity, MIMIC model, traffic safety

Kongress- / Buchtitel: 95th Transportation Research Board Annual Meeting Proceedings


Jahr: 2016

Occurences: · Einrichtungen > Fakultäten > Ingenieurfakultät Bau Geo Umwelt > Lehrstühle > Lehrstuhl für Verkehrstechnik (Prof. Busch) > Autoren > So, Jaehyun (Jason)
· Einrichtungen > Fakultäten > Ingenieurfakultät Bau Geo Umwelt > Lehrstühle > Lehrstuhl für Verkehrstechnik (Prof. Busch)
· Einrichtungen > Fakultäten > Ingenieurfakultät Bau Geo Umwelt > Lehrstühle > Lehrstuhl für Verkehrstechnik (Prof. Busch) > Publikationsjahr > 2016
· Hochschulbibliographie > 2016 > Fakultäten > Bau Geo Umwelt > Lehrstuhl für Verkehrstechnik (Prof. Busch)

Entries: