New Developments in UTMOST: Application to Electronic Stability Control

Flannagan, C.A. and Flannagan, M.J.

The University of Michigan
Transportation Research Institute
2901 Baxter Road
Ann Arbor, Michigan 48109-2150 U.S.A.

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The Unified Tool for Mapping Opportunities for Safety Technology (UTMOST) is a model of crash data that incorporates the complex relationships among different vehicle and driver variables. It is designed to visualize the effect of multiple safety countermeasures on elements of the driver, vehicle, or crash population. We have recently updated UTMOST to model the effects of the time-course of fleet penetration of vehicle-based safety measures, as well as changes in the populations of drivers and vehicle types in the fleet. This report illustrates some of the capabilities of UTMOST with examples of predicted effects for one reasonably well understood countermeasure (electronic stability control, ESC) and three countermeasures just entering the vehicle fleet (forward collision warning, FCW; road departure warning, RDW; and lane change warning, LCW). Results include the relative effects of the countermeasures on the overall number of crashes and on drivers of different ages. The report also illustrates the time-course capability of UTMOST by showing year-to-year savings in serious injuries and fatalities for a driver-based countermeasure (increased belt use), which would have an immediate effect throughout the vehicle fleet, compared to ESC, which as a vehicle-based countermeasure would affect new vehicles as they enter the fleet.

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