

Changing the way we change lanes

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By giving drivers the information they need to change lanes safely, a new device could reduce road crashes by up to 30 per cent.

Robin Hutchinson, currently completing his PhD at the Monash University Accident Research Centre (MUARC), with MUARC researchers Professor Thomas Triggs and Dr Paul Salmon, has developed and is testing a driver support system that aids drivers' decision making when performing lane changes.

Lane change and related manoeuvres are responsible for up to 30 per cent of road collisions worldwide. Drivers have difficulty judging their location and speed relative to other vehicles.

Mr Hutchinson said existing lane change decision aids alert drivers to potential collisions rather than providing the information needed to drive well.

"Merely alerting the driver of a potential collision does not aid the driver in making the judgements needed to safely perform a lane change," Mr Hutchinson said.

The new system presents all the information drivers need to make an optimal change of lanes. By converting information that is challenging for drivers to judge – vehicle locations, safety margins and acceleration requirements – into a simple visual form, the system allows drivers to understand their relationship to other vehicles and guide their actions appropriately.

The strength of the new device stems from its presentation of relevant information in a manner that is consistent with humans' natural perceptual ability.

"We are very good at using natural perception to move around our environment. For example, most people can easily walk through a doorway without touching the sides, or guide their hand to grasp a cup without missing it," Mr Hutchinson said.

"By utilising the strengths of our perceptual system to present useful information we can greatly enhance drivers' ability to perceive other vehicles, safety margins and acceleration requirements."

Preliminary results indicate that [drivers](#) using the new system perform substantially safer lane changes than while using current lane change assistance systems, or with no assistance at all.

Mr Hutchinson is now recruiting for participants to evaluate the effectiveness of the new system in one of MUARC's two driving simulators.

"The simulator allows us to safely evaluate the new system without the potential hazards of an on-road study," Mr Hutchinson said.

Provided by Monash University

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