

# New research finds verbal prompts can make semi-automated driving safer

May 16 2023, by Amy McCaig

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Semi-automated cars are becoming increasingly common, but real dangers exist when technology fails and drivers don't intervene.

New research from Rice University and Old Dominion University finds that verbal prompts as simple as "Is January the first month of the year?" help drivers maintain attention during semi-automated driving.

"Boring but Demanding: Using Secondary Tasks to Counter the Driver Vigilance Decrement for Partially Automated Driving" is published in the journal *Human Factors: The Journal of the Human Factors and Ergonomics Society*. Jing Chen, an assistant professor of psychological sciences at Rice and the senior author of the study, was interested in learning more about how to make semi-automated driving a safer experience with fewer accidents.

"As recent automated driving tragedies have illustrated, this technology is not always perfect at identifying dangerous situations, including objects in the road," she said. "Identifying these hazards and responding in a safe way is sometimes more difficult for automation."

Chen referenced one of her recent studies that demonstrated that human users do not understand how computer vision can be easily deceived. She cited an example of how carefully crafted stickers attached to road signs can be misclassified as critical to safety. As a result, the human driver may need to make up for the limitations of the automated system and assist or take over control of the vehicle.

In the study, 117 students at Old Dominion participated in a simulated, partially automated driving task. The researchers found drivers' attention decreased over the 45-minute task, but asking eight simple questions at random times during the drive significantly increased attention, demonstrated by faster and better responses to hazards.

"With better [attention](#), [drivers](#) know when they need to look out for a [hazard](#) or take over operation of the automated driving system, which can help prevent accidents," Chen said.

Scott Mishler, a doctoral student at Old Dominion, was the lead author of the study.

**More information:** Scott Mishler et al, Boring But Demanding: Using Secondary Tasks to Counter the Driver Vigilance Decrement for Partially Automated Driving, *Human Factors: The Journal of the Human Factors and Ergonomics Society* (2023). [DOI: 10.1177/00187208231168697](https://doi.org/10.1177/00187208231168697)

Provided by Rice University

Citation: New research finds verbal prompts can make semi-automated driving safer (2023, May 16) retrieved 26 April 2024 from <https://techxplore.com/news/2023-05-prompts-semi-automated-safer.html>

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