

# Understanding dynamic scenes: How driving teaches us about scene perception

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Detecting hazards is a key visual task in driving (Wolfe et al., JEP:G, 2019), and peripheral vision isn't enough (VSS19), but how much does looking back help?

**Road Hazard Stimuli**  
503 dashcam videos (253 hazardous events videos, 250 matched control videos), from YouTube  
Available on OSF: <https://osf.io/uq6pc/>  
Temporal Annotation: When did things happen?

Prior to Hazard      First Deviation Cue      Driver Responds

Spatial annotation: where was the hazard in each frame between first deviation and driver response?  
Magenta bounding box shows hazard location.

What segment of hazard videos did we use?

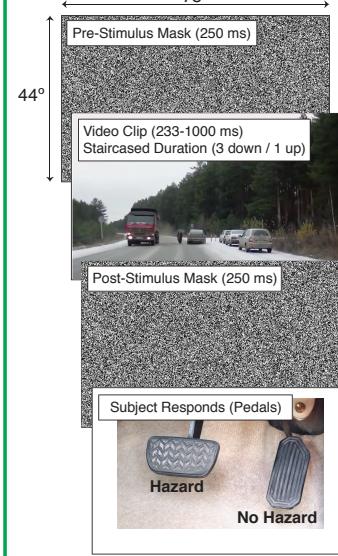


Task: Did you perceive a hazard in the clip you saw?

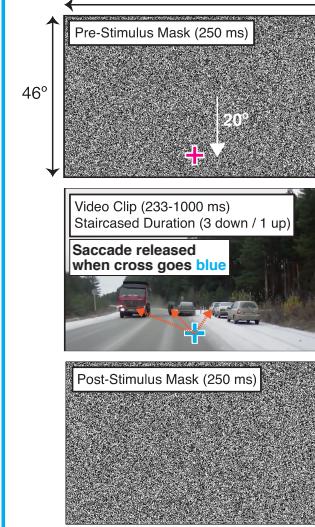
Acknowledgements: This work was supported by the TRI-CSAIL Joint Partnership.  
The authors also wish to thank Anna Kosovicheva for many helpful discussions.

One paradigm, three experiments: same stimuli, same task, different start location

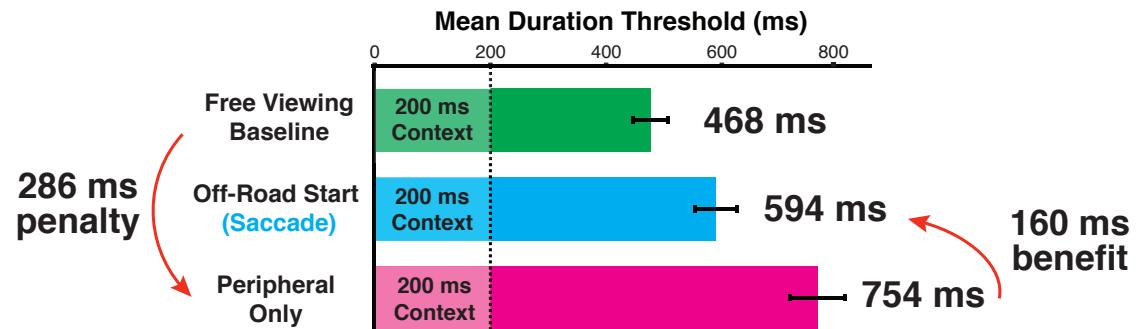
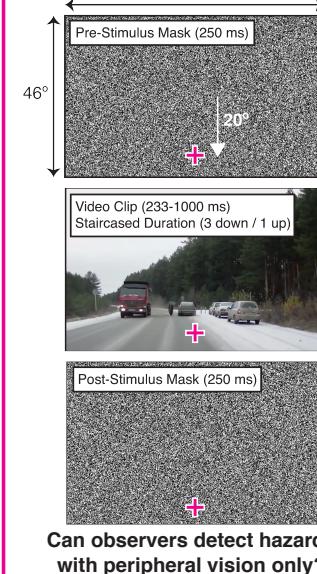
**Wolfe et al., 2019  
Free Viewing**



**Off-Road Start Paradigm (V-VSS)**



**Peripheral Only Paradigm (VSS19)**



Looking back, regardless of where observers looked, drops the penalty by half (+286 ms to +160 ms) versus baseline.

I'm starting a lab at the University of Toronto Mississauga in January 2021, and I'm recruiting graduate students.

If you know students who are interested in applied questions in vision (not just driving - think translational research), please put them in touch.