

Forklift Project Fact Sheet

Eyetracking Research in Forklift drivers

OBJECTIVE:

To use an eyetracking system to locate areas (specific regions), that people attend to (look at) when driving a forklift in different situations.

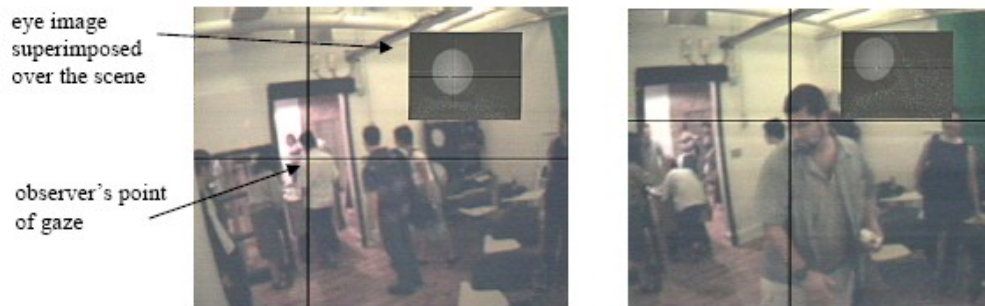


Figure 10 – Images show footage from the scene camera with an eye image superimposed in the upper right corner of the screen. Crosshairs indicate observer's point of gaze.

Background

Forklift accidents occur for many reasons. Forklifts have a unique design which causes them to have poor lines of sight. These poor lines of sight (LOS) can lead to dangerous and even fatal accidents. Several methods can identify vehicle design characteristics resulting in restricted and blocked and lowered lines of sight. However eye tracking systems provide a unique perspective, identifying what the drivers actually look at when they drive given the lines of sight available.

Results of this research can be used to show the difference between what is visible to drivers and what they decide to look at in a scene. This information can be used to

identify priority areas and focus modification of the forklift, in those areas.

Methodology

The Eyetracking system works by lighting the eye with infrared light. The reflection makes it possible to record both the corneal reflection and the pupil reflection. These allow for the calculation of point of regard. The point of regard can be considered as the point in space that the person is looking at.

The system simultaneously records the eye and the scene viewed. The system also records the exact coordinates in space that the person is looking at.

Applications

Comparison to Virtual Environment: Allows the comparison of what drivers look at and what they can see.

LOS Analysis: Allows researchers to determine exactly what people are looking at in a given scene.

Variable Testing: The system can be used in many different driving situations or with different brands of the same types of vehicle, allowing cross-comparisons to be made

For more information

Laurentian University
Sylvain Grenier, PhD
(705) 675-1151 ext. 1095

This research was carried out in partnership with the Mines and Aggregates Safety and Health Association via funding from the Ontario Workplace Safety and Insurance Board.