FACHGEBIET PSCM

TECHNISCHE UNIVERSITÄT DARMSTADT

Bachelor's Thesis

Investigation of eye tracking applications in logistics: Literature review and concept development

Background

There exists a wide variety of eye tracking applications, which can be broadly categorized into two groups, namely diagnostic and interactive applications. In its diagnostic role, eye tracking is used to record eye movements for off-line assessment of the viewer's gaze, while in interactive modality, it is expected to respond to or interact with the user based on observed eye movements. Various eye tracking studies have been carried out in different domains, such as in neuroscience, psychology, retail, marketing, or computer science (Duchowski, 2017). However, the use of eye tracking in the area of logistics has rarely been investigated compared to other domains. Logistics is an important part of the overall economy, and it acts as a major driver for shortening product lifecycles (Winkelhaus and Grosse, 2020). The logistics system is a sociotechnical system where humans interact with diverse technologies and processes. Such a system is affected by the way people behave and calls for fundamental changes when the company wants to adopt new technologies or changes its current systems with new practices. Against this background, potential eye tracking applications in logistics need to be further investigated.

Objective

The objective of this thesis is to identify and evaluate possible applications of eye tracking in the logistics domain. To achieve the described objective, a systematic literature review should be applied. First, it is expected to understand the scientific literature selection process, and then the problem should be placed in the research context to understand what eye tracking technology is, how it works, and why it is important to use eye tracking in the logistics domain. Then the literature should be searched and discussed to outline the state-of-the-art of eye tracking applications in the logistics domain. If no sufficient literature results from the selection process, a further attempt to get literature from other domains is

recommended, e.g. to get insights from the retailing domain and to transfer potential eye tracking applications from retailing to logistics. Finally, a discussion should be formalized to gain insights and derive recommendations for practice.

References

Duchowski, A. T., & Duchowski, A. T. (2017). Eye tracking methodology: Theory and practice. Springer.

Duchowski, A. T. (2002). A breadth-first survey of eye-tracking applications. Behavior Research Methods, Instruments, & Computers, 34(4), 455-470.

Winkelhaus, S., & Grosse, E. H. (2020). Logistics 4.0: a systematic review towards a new logistics system. International Journal of Production Research, 58(1), 18-43.

Supervisor

Dr. Ting Zheng (zheng@pscm.tu-darmstadt.de), Prof. Dr. Christoph Glock

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