

Preventing Struck-by Hazards: Defying Risk-desensitization via Virtual Accident Simulation Dataset

Dataset available at: https://digitalcommons.lsu.edu/transet_data/122

(This dataset supports report **Preventing Struck-by Hazards: Defying Risk-desensitization via Virtual Accident Simulation**)

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The related final report **Preventing Struck-by Hazards: Defying Risk-desensitization via Virtual Accident Simulation**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/61777>.

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Abstract: Repeated exposure to struck-by hazards in road work zones generates workers' habituation to risks related to those hazards, a key contributor to accidents in road work zones. Thus, analyzing the development of risk habituation and providing proper intervention are crucial to preventing accidents in road work zones. In this context, this study employs a virtual reality (VR) environment as a behavioral intervention tool to investigate its effect on mitigating a decline in workers' vigilance with habituation to hazards in workplaces. A virtual environment that simulates a road maintenance task was developed and used to repeatedly expose subjects to struck-by hazards in road construction sites. A VR accident was simulated in response to the emergence of habituation to hazards within the virtual environment. The intervention effect was investigated to analyze the frequency and threshold of subjects' vigilant behaviors. The results indicated that the developed VR environment evoked a decline in subjects' attentiveness as a result of risk habituation within a relatively short period of experiment time, and the simulated VR accidents generated a sustained effect in reducing risk habituation. The findings of this study provide the understanding of how workers' risk habituation can be observed using VR and how a behavioral intervention in a VR environment can reduce risk habituation to repeatedly exposed workplace hazards.

Comments: Tran-SET Project: 20SATAMU20

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Dataset description:

This dataset contains 1 file described below.

20SATAMU20_Data.xlsx:

The .xlsx and .xls file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.

National Transportation Library (NTL) Curation Note:

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://ntl.bts.gov/public-access>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset. NTL staff last accessed this dataset at https://digitalcommons.lsu.edu/transet_data/122 on 2022-05-24. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.