UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

The Effects of Cognitive Load on Full-Body Gaze Control During 3D Visual Search

Permalink

https://escholarship.org/uc/item/0dw4t9v8

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 47(0)

Authors

Kelly, Zachary
Franchak, John

Publication Date

2025

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at https://creativecommons.org/licenses/by/4.0/

Peer reviewed

eScholarship.org Powered by the California Digital Library
University of California

The Effects of Cognitive Load on Full-Body Gaze Control During 3D Visual Search

Zachary Kelly
University of California, Riverside, Riverside, California, United States

John Franchak
University of California, Riverside, Riverside, California, United States

Abstract

Increased cognitive load is linked to decreased fixation counts and longer dwell times during visual search. However, past work studied eye movements in 2D tasks, whereas in 3D environments the head and body help the eyes gather information. Thus, we examined how cognitive load affects the eyes, head, and body in 3D visual search. Cognitive load may create difficulty planning the eye, head, and body movements needed to search a 3D space. We used an eye-tracker to record gaze and inertial sensors to measure the motion of the head and body during a dual task paradigm: Participants searched a set of 27 images distributed in a 270º space for stimuli of a specified criteria. Cognitive load was manipulated by having participants count backwards by set intervals (1, 3, 5, 7, and no counting). Results showed a decrease in total fixations and an increase in stimulus dwell times when under load.

In D. Barner, N.R. Bramley, A. Ruggeri and C.M. Walker (Eds.), *Proceedings of the 47th Annual Conference of the Cognitive Science Society* ©2025 the author(s). This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY).