

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Assessment of Cognitive Load in the Context of Neurosurgery

Permalink

<https://escholarship.org/uc/item/5bq2p1xv>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 41(0)

Authors

Di Giovanni, Daniel

Drouin, Simon

Kersten-Oertel, Marta

et al.

Publication Date

2019

Peer reviewed

Assessment of Cognitive Load in the Context of Neurosurgery

Daniel Di Giovanni

McGill University, Montreal, Quebec, Canada

Simon Drouin

Montreal Neurological Institute (McGill University), Montreal, Quebec, Canada

Marta Kersten-Oertel

Concordia University, Montreal, Quebec, Canada

Louis Collins

McGill University, Montreal, Quebec, Canada

Abstract

The work presented in this paper explores the amount of effort, defined by cognitive load, needed to understand depth visualization while navigating a virtual space in the context of planning for image guided surgery. In this context, cognitive load is evaluated by measuring brain activity through event-related electroencephalography (EEG). We found a significant difference between dynamic depth cue renders versus statically rendered cues. The work presented here demonstrates the usefulness of EEG as an acceptable and efficient method to inspect brain activity for future user studies in the operating room, and that cognitive load can serve as an objective measure of visualization effectiveness.