

SPiRE-EIT|2019



Summer Program for Interdisciplinary Research and Education – Emerging Interface Technologies (SPiRE-EIT)



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Reducing Disorientation in Teleportation Interfaces

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One increasingly common interface for exploring large virtual environments (VE) is teleportation, whereby the user selects a distant location on the ground plane and is immediately transported. The teleportation interface is widespread in VR, but it may come at a spatial cognitive cost. In particular, the lack of body-based cues when teleporting may disrupt spatial updating, the process of keeping track of self-location during travel. Accurate spatial updating is critical for a successful VE, particularly in time-sensitive domains such as remote medical assistance and training for extreme workplace circumstances.

This ongoing project explores how body-based cues and visual piloting cues, such as landmarks, affect spatial updating performance. Currently, results from five experiments show that restriction of body-based cues caused larger errors in spatial updating, but that some visual piloting cues (e.g., a surrounding virtual room) reduce but do not eliminate these errors. REU interns will be tasked with designing effective ways to reduce disorientation by developing novel interfaces in Unity that allow for movement in large VEs, e.g., by using an avatar, optic flow, or a preview perspective of the future location.

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