Nav

Improving Navigation in Virtual Environments

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Team Meeting Location: VRAC Conference Room

This research evaluates the impact of three common navigation interfaces and several environmental cues on HMD users' ability to perform spatial updating in virtual environments (VEs), a fundamental navigation task which requires keeping track of self-location when moving through space. Accurate spatial updating is critical to VE success, particularly in time-sensitive domains such as remote medical assistance and extreme workplace training. Navigation interfaces in VR fall into three categories distinguished by concordance between visual movement and movement of the user's body:

- **Completely concordant:** user physically walks and turns to explore the VE.
- **Partially concordant:** user turns to change perspective but uses another mechanism, usually teleportation, to change position.
- **Completely discordant:** minimal body movement; navigation is primarily based on another mechanism such as a gamepad.

With users wearing an HMD and performing tasks using one of the three navigation interfaces above, we will compare different environmental cues such as 1) no landmarks, 2) proximal landmarks, 3) distal landmarks, 4) rectangular room, and 5) amorphous room (an irregularly shaped cave). REU interns may have additional ideas and will help create these virtual environments and design the evaluation study.

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