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# Scientific works using blenderCave

## 6DoF Navigation in Virtual Worlds

- **6DoF Navigation in Virtual Worlds: Comparison of Joystick-based and Head-controlled Paradigms**
- 6DoF navigation in immersive virtual world can implemented in various ways. Two types of navigation techniques have been compared in a 4 faced-CAVE: joystick-based input devices and steering metaphors based on movements of the user's body, e.g. head-controlled paradigms. An experiment was carried out using objective and subjective measurements to assess user performance, the occurrence of cybersickness symptoms and the level of presence, when using either of these navigation paradigms.
- blenderCave served as the software platform, with various input devices controlling the user's flight through a series of navigational tasks. While the virtual world was static, the selection of various test configurations and generation of experimental logs were all achieved within blenderCave.
- Weiya Chen, Anthony Plancoulaine, Nicolas Férey, Damien Touraine, Julien Nelson, and Patrick Bourdot (2013) "6DoF navigation in virtual worlds: comparison of joystick-based and head-controlled paradigms". In Proceedings of the 19th ACM Symposium on Virtual Reality Software and Technology (VRST '13). ACM, New York, NY, USA, 111-114. [DOI=10.1145/2503713.2503754](https://doi.org/10.1145/2503713.2503754)
- Images : 
- Video example : [ToDo]

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## CAVE-based Virtual Prototyping

- **CAVE-based Virtual Prototyping of an Audio Radiogoniometer: Ecological Validity Assessment**
- This study is concerned with the evaluation of the ecological validity of a virtual prototype implemented with blenderVR. It exposes a simple methodology to qualitatively and quantitatively answer the *sine qua none* question "how much this virtual prototype reflects reality and which are the situations where it does significantly predict the physical prototype's performances?".
- The virtual prototype, i.e. the blenderVR scene, exploits various input devices (6 DoF tracking, Wii Balance Board, Wiimote, etc.) as control metaphors along with OSC communication towards MaxMSP to generate interactive audio feedback sonification based on geometrical data from the blender scene.
- David Poirier-Quinot, Brian FG Katz (2014) "CAVE-based Virtual Prototyping of an Audio Radiogoniometer: Ecological Validity Assesment". Presented at the 20th International Conference on Auditory Display (ICAD2014), June 22-25, 2014, New York, NY.

<http://hdl.handle.net/1853/52064>

• Images :    

• Video examples : [Sonification Level example](#) [View of experiemental conditions](#)

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