

Gaze-Based Interaction -

Eyesteroids – Input Methods for Immersive Games

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A central point in Virtual Reality (VR) is the creation of immersion. A high level of immersion can be supported and improved by the use of intuitive interaction methods. Gaze interaction within desktop applications has been tested and analyzed for many years [1]. How about gaze interaction in 3D worlds, where the user is able to move around physically, e.g. like in a Holodeck [2]? Is this a serious approach?

For finding answers concerning this questions we developed Eyesteroids, an immersive game inspired by Asteroids (published by Atari in 1979). The user is situated in outer space and has to fight moving space ships. The space ships have a weak spot which the user is challenged to hit. Our intention is to test a set of aiming and selection techniques in this scenario. In order to obtain a measure of performance, we collect data on reaction time and accuracy for the different techniques.

Concerning these interaction methods we developed different opportunities, for instance aiming by looking at the object he wants to shoot at or by aiming with a Light Gun. Also for triggering the shooting, the user has a set of different possibilities, e.g. blinking with the nondominant eye or triggering the Light Gun.

On the poster we would like to give an overview of the game and the technical environment itself with a special focus on the gaze-based interaction.

References

- [1] Ware, Collin; Mikaelian, Hartune. An Evaluation of an Eye Tracker as a Device for Computer Input. In CHI '87 Proceedings of the SIGCHI/GI conference on Human factors in computing systems and graphics interface. New York: ACM.
- [2] Pfeiffer, Thies. Towards Gaze Interaction in Immersive Virtual Reality: Evaluation of a Monocular Eye Tracking Set-Up. In Virtuelle und Erweiterte Realität - Fünfter Workshop der GI-Fachgruppe VR/AR, 81-92. Aachen: Shaker Verlag GmbH.