The Biosphere - An immersive virtual world

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Virtual environments face the challenge of allowing an user to completely immerse in another world and to benefit from the possibilities such an realistic computer simulation may offer. Whether they are applied in computer games, research fields like medicine or in industrial design of cars [1], either way it is necessary to discover new ways to make these virtual worlds even more realistic and to present new intuitive means of interaction.

On this basis, the Biosphere project is an approach to develop such an highly immersive and interactive virtual world. The world consists of multiple floating boulders. These freely explorable structures possess many features of real-world outdoor settings such as flowing water, a day/night cycle, hills and mountains as well as a great variety of vegetation growing all over the place. By means of teleporters the differently designed boulders and an integrated cave system are accessible. In the end several creatures endowed with dynamical behaviour populate the world in order to round off the impression of a lively environment and thus to reinforce the drive towards exploration. Their behaviour is implemented using the subsumption architecture introduced by Brooks [2].

Our main concern was to create an inviting environment rich in detail while using prevalent interaction technologies and applying methods from Artificial Intelligences. Situated in a CAVE the user is able to choose between using data gloves, a Wii Remote or a combination of the latter with a Wii Balance Board as navigation alternatives in order to ensure the highest possible degree of immersion.

The poster shows parts of the Biosphere and gives a short summary of our main ideas preceding its development.

Project advisors: Nikita Mattar and Julia Fröhlich

References

[1] Fröhlich, C., Wachsmuth, I., & Latoschik, M. E. (2009). Virtuelle Werkstatt Multimodale Interaktion für intelligente virtuelle Konstruktion. In J. Gausemeier & M. Grafe (Eds.), *8. Paderborner Workshop Augmented & Virtual Reality in der Produktentstehung* (pp. 241-255). Paderborn: HNI.

[2] Brooks, R.; A robust layered control system for a mobile robot, *IEEE Journal of Robotics and Automation*, vol.2, no.1, pp. 14- 23, Mar 1986