Distributed Virtual Reality Environments Based on VRML

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ABSTRACT

Nowadays computer graphics technology has been developed to create and simulate Virtual Reality Environments. Meanwhile more and more researchers are focusing on the extensibility and interaction of VEs. Ideally Virtual Environments should be dynamic, mutable and attractive for immersed users. As such environments can be designed easily by Virtual Reality Modeling Language (VRML), here we propose a distributed Virtual Reality (VR) system that is based on an interactive animation system using VRML for geometric and behavioral modeling. The emphasis is on concepts and extensions for the integration of user immersion and interaction, and system extensibility into a VRML-based animation environment. In this paper we have used VRML 2.0 Version to implement the modeling of a virtual theater with several desks and chairs, a rostrum, a specialized computer with multimedia devices, fans and fluorescent lamps, as well as interactive avatars. The case study served here illustrates the proposed concepts and extensions, and helps us elicit the conclusion that any Virtual Environment has its great system interactivity and extensibility and user immersion, and can be a VRML-based Distributed Virtual Reality Environment.

Keywords Virtual Reality Modeling Language, Distributed Virtual Reality Environment, computer interaction, extensibility, computer graphics