Rendering and interacting with volume models in immersive environments

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The recent advances in VR headsets, such as the Oculus Rift or HTC Vive, at affordable prices offering a high resolution display, has empowered the development of immersive VR applications. In this paper we propose an immersive VR system that uses some well-known acceleration algorithms to achieve real-time rendering of volumetric datasets in an immersive VR system. Moreover, we have incorporated different basic interaction techniques to facilitate the inspection of the volume dataset. The interaction has been designed to be as natural as possible in order to achieve the most comfortable, user-friendly virtual experience. We have conducted an informal user study to evaluate the user preferences. Our evaluation shows that our application is perceived usable, easy to learn and very effective in terms of the high level of immersion achieved.

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