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A cybernetic observatory based on panoramic vision

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Keywords

virtual reality, panoramic image, Visorama, cybernetic observatory

Abstract

This article is about an original virtual reality and multimedia system named Visorama, with dedicated hardware and software aimed at the following fields: digital art, entertainment, historical tourism and education. On the software level, the Visorama system includes the research of a new methodology to build and visualize a stereoscope panorama; a high-level language to provide a transition mechanism between panoramas (wipes, blending, etc.); and multipresolution panoramas to assure the image's resolution level. On the hardware level, the Visorama simulates an optical device that uses a binocular display to show the image generated by the panorama system. This display is attached to a support base that can rotate around vertical and horizontal axes, which have high-resolution sensors that together capture the current viewing orientation. In addition, three buttons allow the control of zoom angle and the generation of discrete events. This form of direct manipulation of the viewing parameters provides a natural interface for virtual panoramas. On the level of its applications, the system as a whole is designed to promote a more natural interaction with the real space, since its basic characteristics allow the possibility of visualization of the real through a virtual window. The viewer travels in space and time following the several link points contained in it, as various possible navigation routes. Author(s): André Parente * | Luiz Velho * 1Contact: André Parente Ph.D., UFRJ – Universidade Federal do Rio de Janeiro, Av. Pasteur, 250, 22295-900 Rio de Janeiro, RJ, Brasil. 2Contact: Luiz Velho Ph.D., IMPA – Instituto de Matemática Pura e Aplicada, Estrada Dona Castorina 110, 22460 Rio de Janeiro, RJ, Brasil.

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