

AdaptiveCave: A new high-resolution, multi-projector VR system

Andujar, Carlos; Brunet, Pere; Diaz-Garcia, Jesus; Vico, Miguel Angel; Vinacua, Alvar



In this paper, a novel four wall, passive stereo multi-projector CAVE architecture is presented. It is powered by 40 *possibly different* off the shelf DLP projectors controlled by 12 PCs. We have achieved high resolution while significantly reducing the overall cost, resulting on a high brightness, 2000 x 2000 pixel resolution on each of the 4 walls. The AdaptiveCave VR System has an increased versatility both in terms of projectors and screen architecture. First, the system works with any mix of a wide range of projector models that can be substituted *one by one* at any moment, for more modern or cheaper ones. Second,

the self-calibration software, which guarantees a uniform final image with concordance and continuity, can be adapted to many other wall and screen configurations. The AdaptiveCave project includes the set-up and all related software components: geometric and chromatic calibration, simultaneous rendering on 40 projected viewports, synchronization and interaction. The interaction is based on a cableless, kinect-based gesture interface with natural interaction paradigms.