

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

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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.