Abstract

Immersive telepresence allows distributed groups of users to meet in a shared virtual 3D world. Our approach uses two coupled projection-based multi-user setups, each providing multiple users with perspectively correct stereoscopic images. At each site, the users and their local interaction space are continuously captured using a cluster of registered depth and color cameras. The captured 3D information is transferred to the respective other location, where the remote participants are virtually reconstructed in life-size. Local and remote users can jointly or independently explore virtual environments and virtually meet face-to-face for discussions. We structure collaborative activities of collocated and remote users can jointly or independently explore virtual environments and virtually meet face-to-face for discussions. We structure collaborative activities of collocated and remote users using Photoportals. Virtual photos and videos serve as three-dimensional references to objects, places, moments in time and activities of users. They can be shared among users and serve as portals to the captured information. Our Photoportals also provide access to intermediate or alternative versions of a scenario and allow the review of recorded task sequences that include life-size representations of captured users.
Abstract

Today’s computers are increasingly parallel, and mapping algorithms to these architectures has become increasingly difficult. Failing to adapt to the architecture leaves our performance in the dark ages, with little hope of scaling on today’s and tomorrow’s hardware. This tutorial-like talk discusses the underlying parallel hardware constraints, different approaches to parallelism, a hands-on example for computing PI, and the use of domain specific languages to hide complexity.