

*Collaborators*  
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Shared Space merges real and virtual worlds in a way that can radically enhance face-to-face and remote collaboration. By wearing a lightweight, see-through head-mounted display, users see 3D virtual images overlaid on the real world and attached to real-world objects.

For face-to-face collaboration, this allows users to see each other at the same time as the virtual images between them, which supports natural communication between users and intuitive manipulation of virtual objects. For remote collaboration, Shared Space overlays life-sized live virtual video images of remote collaborators on the local real environment, supporting spatial cues and removing the need to be physically present at a desktop machine to conference. In both cases, computer vision techniques are used to precisely register virtual images with physical objects, extending the "tangible interface" metaphor.

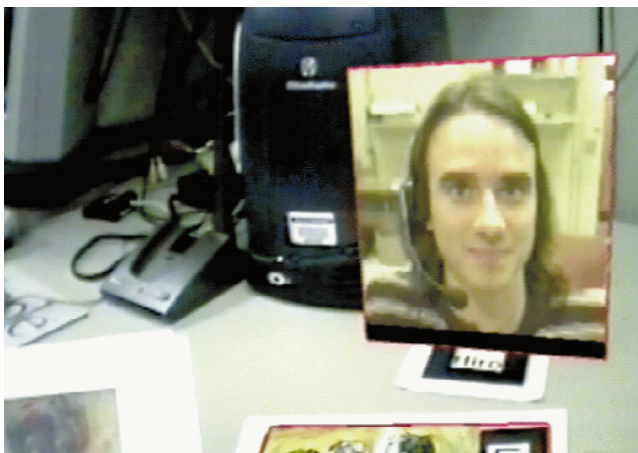
At SIGGRAPH 99, Shared Space allows face-to-face and remote users to create interactive art together using virtual animated characters and props in a real tabletop environment.



The view through the head-mounted display in a face-to-face setting. Users can see their collaborators and virtual objects between them.



View from outside the interface. The virtual objects are only visible to those wearing the head-mounted displays.



A virtual video window of a remote collaborator.



A virtual video window of a remote collaborator and shared virtual image attached to a real-world object.