The DirectCam System

In DirectCam, we track the user's hands in 3D space using a Vicon optical motion tracking system (above, left). Users wear a pair of gloves supported with retro-reflective markers (center, left). DirectCam has been designed and implemented as an extensible, off-the-shelf, high-performance system that allows users to create new metaphors and accessories to enhance the system’s capabilities. A small set of hand gestures determines the system’s current task. Associated with each gesture are pre-defined objects, accessible and manipulable objects, and any other actions that the user may perform with the object. These gestures are designed to have distinct, recognizable motions that allow the user to easily identify and perform specific actions.

Object and Camera Manipulation

DirectCam: A Gestural System for Animate Creation

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In DirectCam, modeling and animatic creation begin with the creation of hand-drawn storyboards. These are imported along with temporary assets, i.e., a story reel and a camera shelf, containing camera and scene metadata. The user can subsequently edit the story with custom 3D assets, which are added to the scene to create the desired composition. The creation of the camera can be automated or interactively controlled. However, this is not done due to the desired feedback and refinement involving the director and animatic artist.

A small set of spatial hand gestures allows the user to directly create and manipulate 3D data without requiring technical knowledge of the underlying animation representation. Using a story reel and a camera shelf, the user can create a scene of a character and camera. Each hand gesture is associated with a cursor that is continuously updated in the scene, as well as the camera by observation.

Users perform the desired task by selecting and manipulating objects, manipulating the camera, and adding new objects to the scene. They can also create new objects by selecting a primitive shelf and then selecting an object to instantiate. Each hand gesture is associated with a cursor that can be used to refine the scene.

Animation

In DirectCam, the user can create animations by selecting a camera frame, altering the scene, and then setting a keyframe value for the current frame. To refine scenes, users can add or delete primitives, animate and populate manipulations are performed by a user-defined model, while camera manipulations are performed by a user-defined model. For animations to be exported to a user-defined model, while camera manipulations are performed by a user-defined model.

Evaluation and Conclusions

To evaluate DirectCam, we tested participants using conventional 3D animation software to create an animation. The animation was then evaluated by an experienced user, who rated the system's usability, effectiveness, and satisfaction. The system was found to be intuitive and easy to use, with users finding it simple and easy to create animations. The system was also found to be effective in creating realistic animations, with users finding it simple and easy to create animations.

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Postures and Gestures for DirectCam

Before we look at the manipulation and modeling postures for DirectCam, let's explore the features. A gesture enables the user to select and manipulate objects in the scene. The gesture is defined as a combination of movements that are associated with the gesture.

Modeling and manipulation gestures are shown below and in the film. These gestures are used to add, delete, and edit objects in the scene. Postures and gestures for each task are described in the text below.