Project Overview

Image-Based Approach to 3-D Computer Graphics

- Images rather than geometry as underlying model
- Interpolate “virtual views” from image database

GOAL: Dynamic image-based models

- A real-time camera array
- Synchronized, Calibrated
- IEEE-1394 (Firewire) Host interface
Progress Through June 2001

- Completed 2 prototype camera arrays (8 by 1)
- Demonstrated capture of 16 synchronized video streams into single host PC
- Completed camera calibration and capture control S/W

Results: The image sequence shown above was captured using 2 prototype camera arrays configured as a single 16 by 1 linear array. An MPEG video of the entire capture sequence is can be seen by clicking on the icon.
MIT9904-14: A Synthetic-Aperture Camera Array
Leonard McMillan and Julie Dorsey

Research Plan for the Next Six Months

♦ Complete 32 (8 by 4) camera array prototype
♦ Integrate real-time video streams into our image-based rendering software
♦ Complete design of intelligent camera module