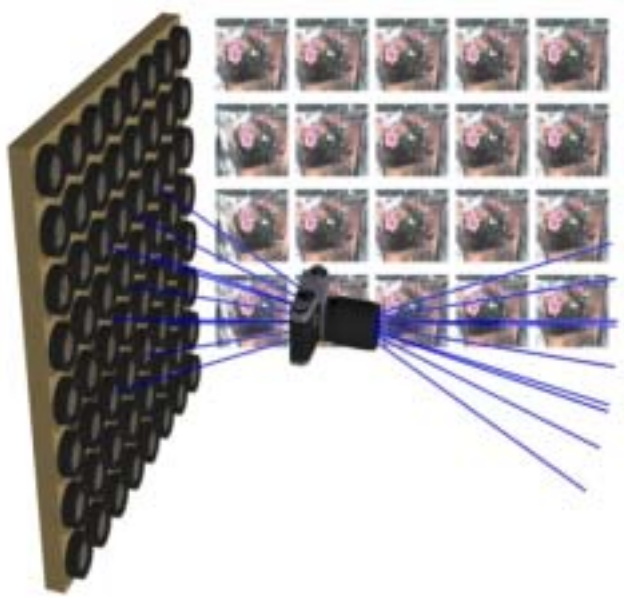
Leonard McMillan and Julie Dorsey

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

MIT9904-14: A Synthetic-Aperture Camera Array

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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 a our 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.

Media Clip

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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