Immersion into Visual Media: New Applications of Image Understanding

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Immersion into Visual Media

Modeling by Videotaping

- Using many images for 3D model creation
  Structure from motion

Video Library

- Navigating through many images for information
  Image matching and feature extraction

Virtualized Reality

- Providing many images for sensation
  Video-rate stereo machine
Give me more flops
and sustained bandwidth
Camerahead for Indoor Use

Sony XC75 × 6
Unit baseline 5cm
Longest baseline 15cm

Processing Hardware

9U × 280mm Board × 5
6U × 160mm Board × 8
LOG Filtering Board

Selector

Convolver 7x7

Multi Resolution Logic

Convolver 7x7
Convolver 7x7
Convolver 7x7

LUT

In 8

Out 4
Computational Power Simplifies Algorithm and Improves Robustness
Chroma-keying  Z-keying
Z-keying
CMU Video-Rate Stereo Machine

- Multi-camera Head
- Depth Image (7 bits)
- Color/Intensity Image (8 bits)

30 frames/Sec
Z-keying