# Mixed Reality

## Trompe l'oëil in the 21st Century

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**School of Film and Digital Media**
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# *Trompe l'oëil*

**To deceive the viewer as to its reality.**

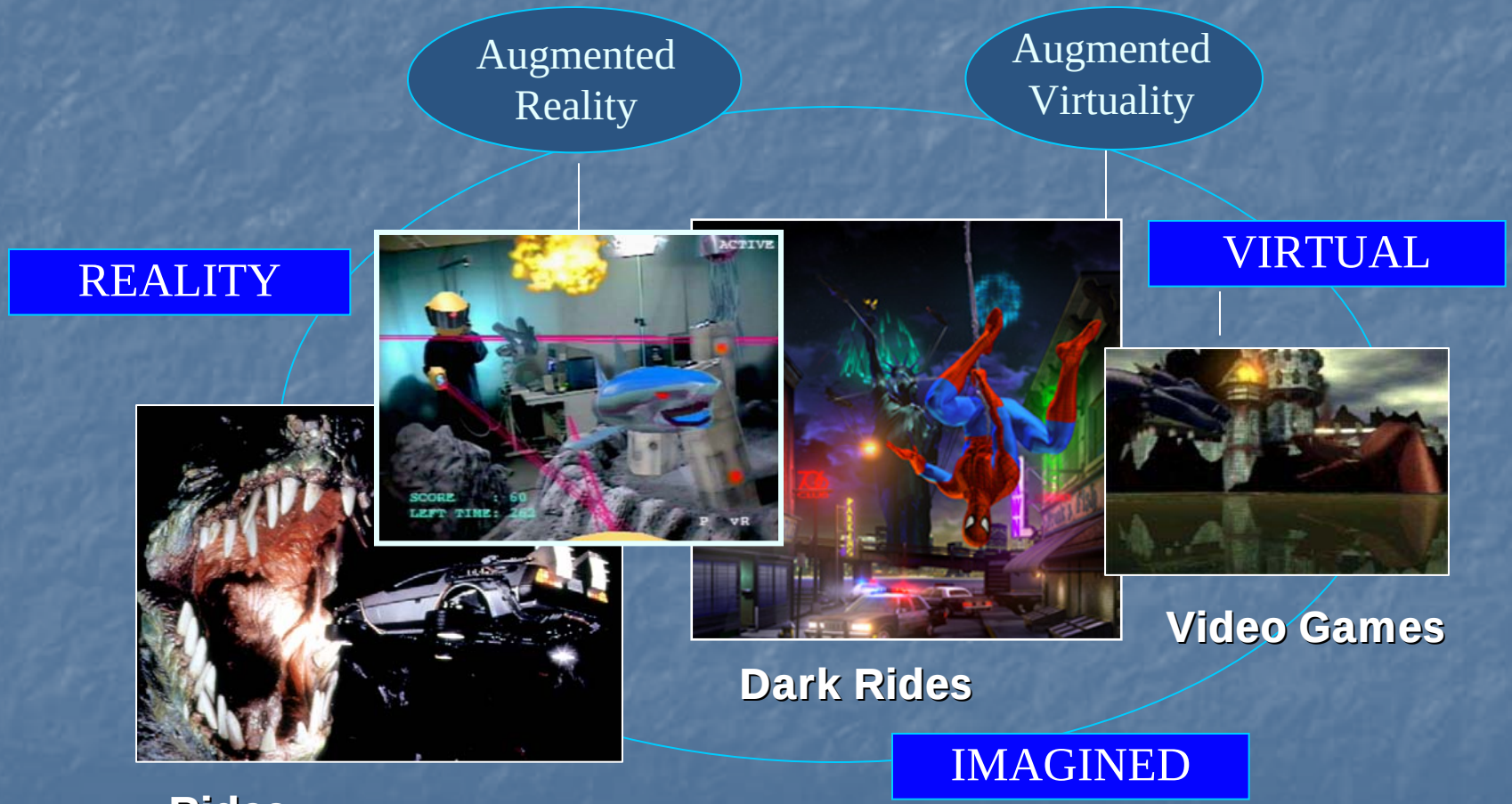
# See-Through HMDs

Optical

Video

# Extending Mixed Reality

## "Magic is behind the eyeballs"



# MR Experiences

## Examples from our Media Convergence Lab

# Entertainment

# Time Portal (AR)

MR @ SIGGRAPH'03

Visual + audio + SFX

Animatic

# Collaboration

# Augmented Virtuality

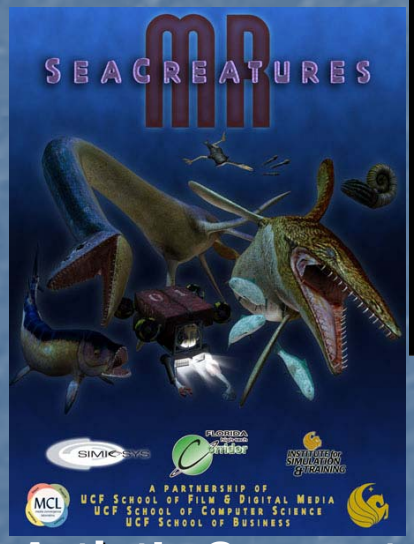
**Placing Real Entities into Virtual Environments**

# Demo Dome Characteristics

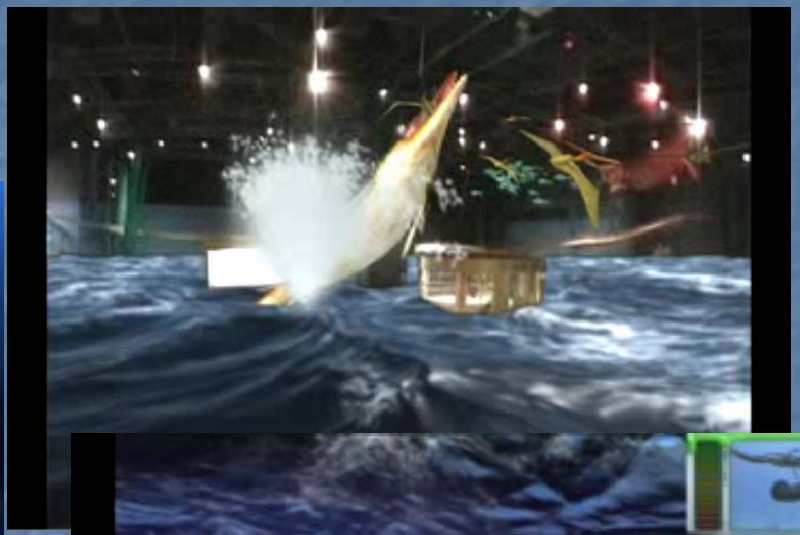
- Relative to CAVE
  - Lightweight
  - Inexpensive
  - Can have distinct POVs
    - E.g., consider a city planner and an architect
    - Each wants specialized information
    - But both need to have a common context

# Education

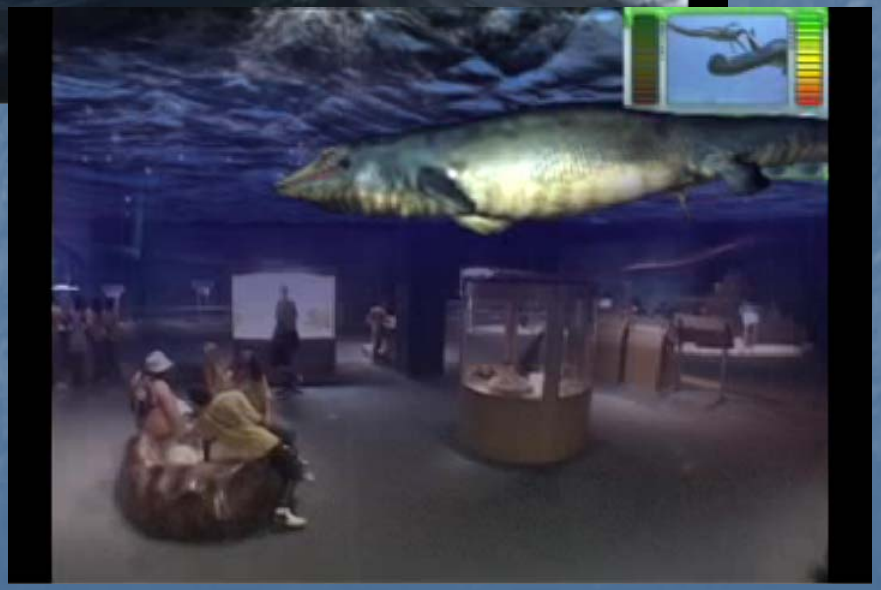
# MR Sea Creature @ OSC




Artist's Concept

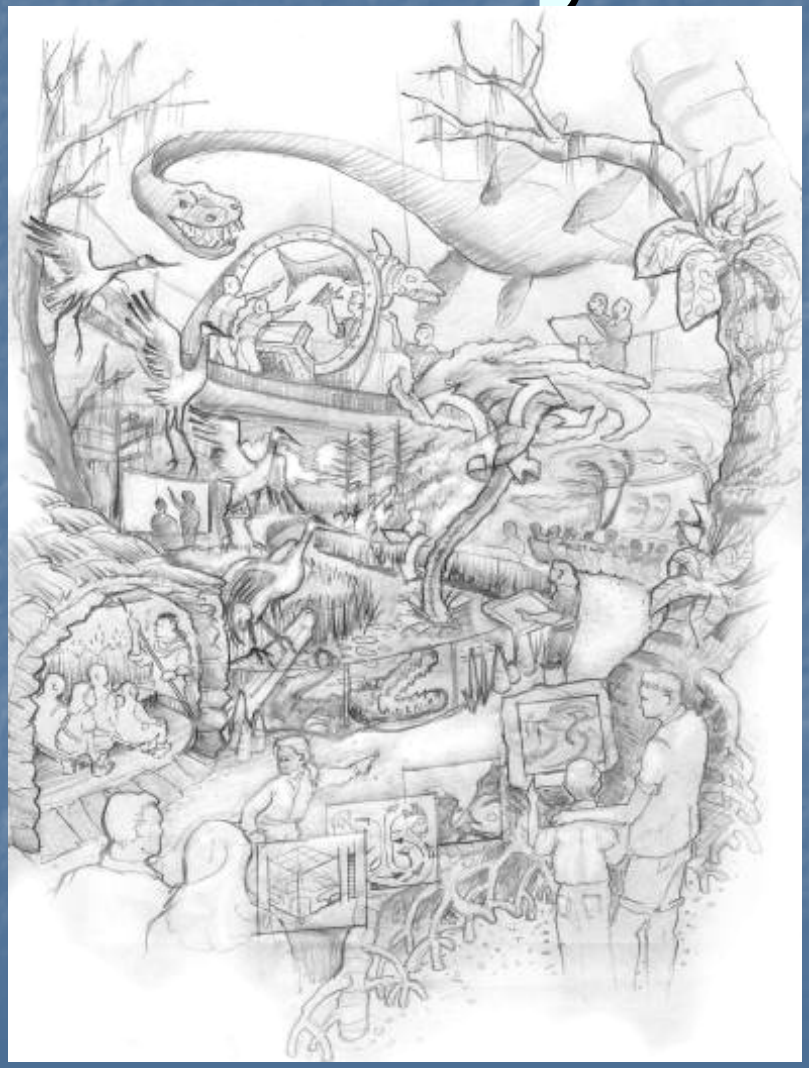


MR ROVER



# Sea Creature
## Enhancing The Museum with MR

# Water's Journey through ...



# Training

# MR MINI-MOUT

# Merging Realities

MR MOUT 2.0
THIS IS MIXED REALITY

# Research

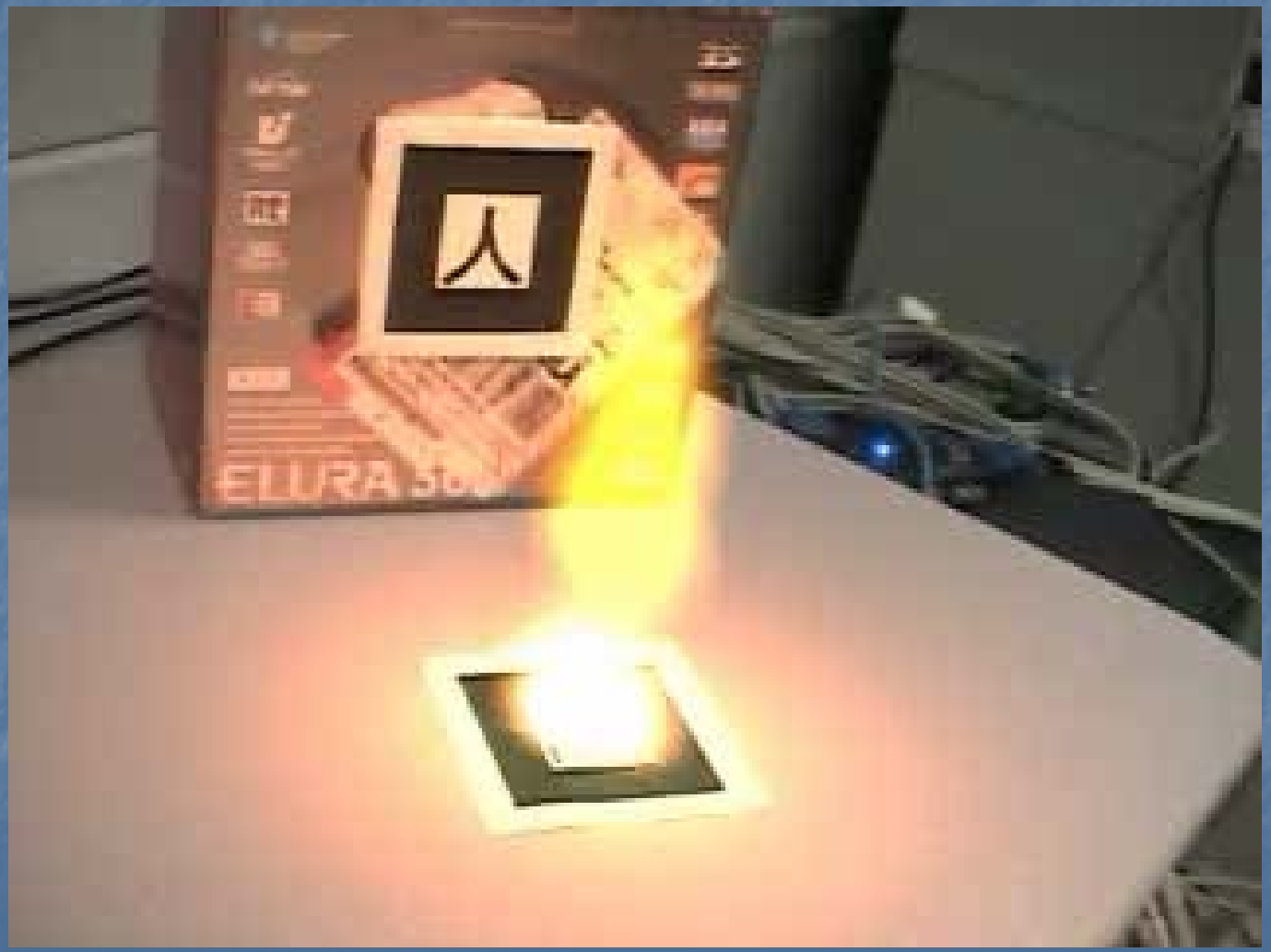
# MR Software Suite

- Platform neutral
- Story Engine
  - Agent-based
  - Plug-in architecture
- Audio Engine
  - Constraint-based speaker usage
- Graphics Engine
- DMX Engine
- Protocols
  - Command and control streams
  - Behavior, GUI and device interfaces

# Visual Rendering

- Interactive-time and Realistic (GPU)
- Global Illumination
  - Shading and shadows
  - Interaction of real and virtual
- Ambient lighting
  - Color mapping so virtual react
- Story-based rendering
- Various HDR projects

# Fire / Shadows



# Pegasus in CSB

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