

# Mixed Reality Productions of the Future

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&

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# Outline

- Mixed Realities: Overview
- BBC R&D: Augmented Reality in Production
- BBC C R&D: Evaluating AR beyond Television
- What could this mean for Future Productions?

# Mixed Reality

Mixed Reality = interplay between real and virtual



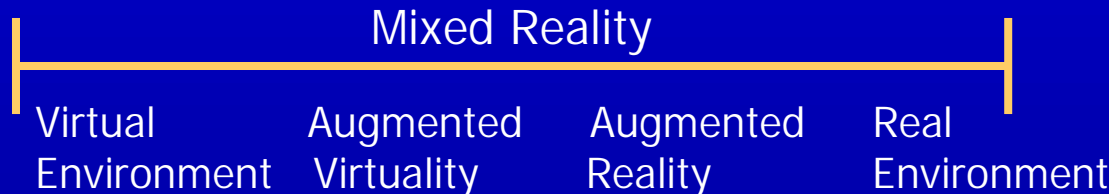
*RWB, Cyberstage -  
courtesy of Fraunhofer*



*HIT LAB*

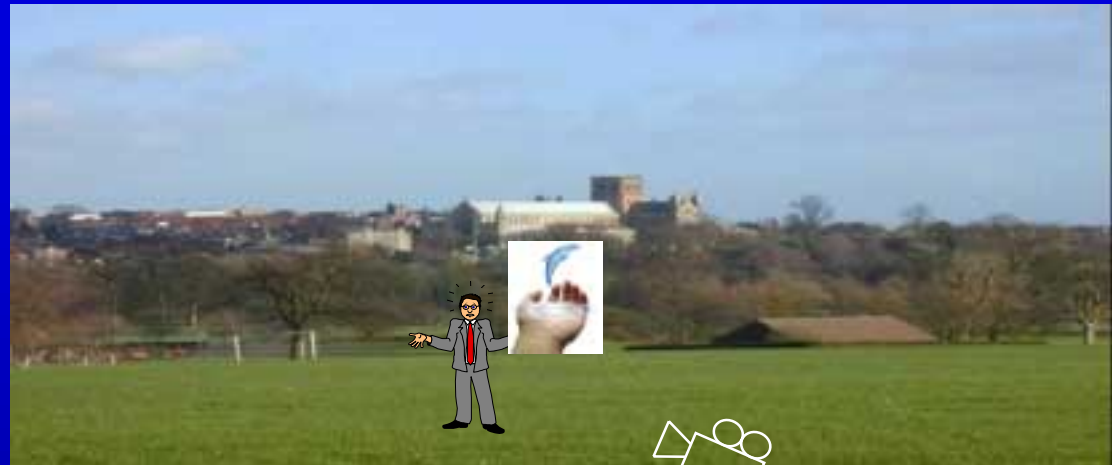


*The Office of The Future Group*

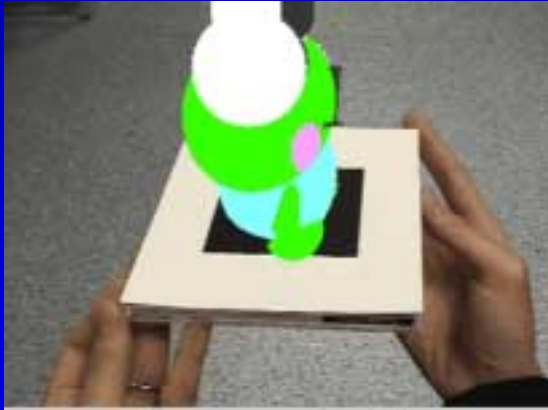


# Virtual Studios

- Tele-teaching
- Immersive Telepresence
- Distributed Virtual Studio
- ORIGAMI Enhanced Virtual Studio



# Augmented Reality



**Play the:**

mov file (1.1 mb)

(no sound)

avi file (3 mb)

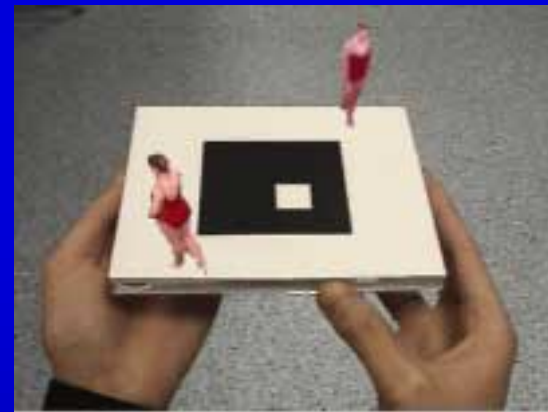
(no sound)

HIT Lab & ARToolworks

## ARToolkit

- Tracks b&w patterns
- Web camera and PC
- Real-time rendering
- Virtual on top of video
- Interaction with virtual

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**Play the:**

mov file (2 mb)

(no sound)

avi file (906 kb)

(no sound)

[http://www.hitl.washington.edu/projects/shared\\_space/](http://www.hitl.washington.edu/projects/shared_space/)

# Goals and Approach

## Mixed Realities in Production?

- Mixed Reality Production
  - Augmented Studio Production
- Evaluation of User Experience
  - Evaluating AR beyond Television
- Hands-on Demos
  - Stimulate ideas and fun experience



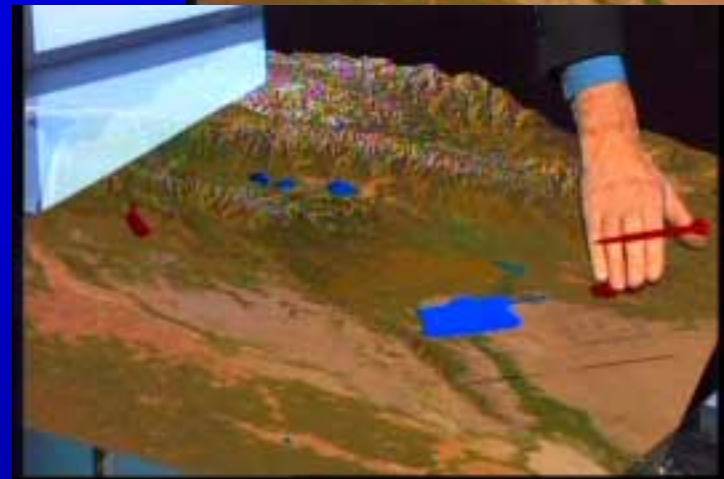
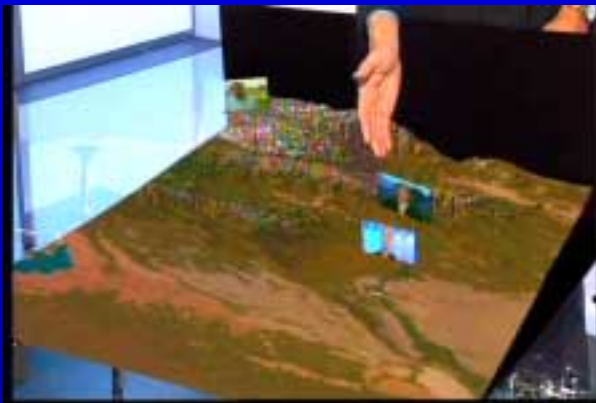
Goal: innovate productions and enhance audience experience

# AR & Studio



# War Board Production

- Interlace video
- Zoom & focus information
- Chroma-key and mask layers
- Interaction
- Pre-scripted animations
- Live video in and Virtual Close up
- Improve speed and robustness



# User Experience Beyond Television

*Evaluate potential of AR from audience perspective*

- Aim: To assess user experience/s for broad range of people in many different environments (home, school, street, museum)
- Key question: What does AR offer to user experience that differs from web, iTV or computer games?

# Human Factors & Ergonomics

## Methodology:

- Twelve 8-12 year olds (boys & girls) tested as pairs at Lab

## Aim:

- Explore children's basic interactions with & their attitudes to AR - do they like it?, is it easy/fun?
- Iron out basic ergonomic problems with AR

## Findings:

- Content is king!
- Technology is not 'wow' in itself
- Needs a context and motivation to be compelling



# Impact of Narrative

## Methodology:

- Based on stories / characters of future CBBC commission
- Same set of children as first tests

## Aims:

- Assess introduction of narrative on enjoyment of & interaction with AR
- Evaluate long term impact of AR (does it remain compelling?)

## Findings:

- "Board game meets computer game"
- Liked challenges, recognised characters & worlds and gave fun responses



# Potential in Learning

## Methodology:

- Year 5 (10-11 years old) Science: Earth-Moon-Sun
- 30 pupils tested with AR content against web content

## Aims:

- Assess pupil and teacher reaction to new learning tool
- Evaluate impact on kinaesthetic learners

## Findings:

- AR scored greater improvements in class and kinaesthetic learners
- Results encouraging but not statistically significant... yet!



# Different Environments

## In *Public Spaces*

- BBCi Showcase, Bush House
  - Passers-by control virtual dancers through the window



## In *Cultural Spaces*

- Collaboration with Science Museum, London
  - 60 'real' people in 3 days (7-67, male/female)
  - Content from BBCi Science



# Productions of the Future

## Lessons Learnt

- Production: Technical R&D in parallel with evaluation
- Evaluation: User-centred evaluation vs. user testing
- Demos: Putting it to the hands of the users early

## What does it mean for the Productions of the Future:

- Mixed Reality TV production in studios and on location
- Interactive installations at events, public spaces
- Applications in Schools & Online
- Productions are cross-platform
- 360 degree commissioning

# Thank You



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