3D Digital Contents

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What Does 3D Mean? (1/3)

• Computer games like these are 2D:
What Does 3D Mean? (2/3)

• Computer games like this are 3D:

![Screenshot from Age of Mythology](https://example.com/age_of_mythology_screenshot)

What Does 3D Mean? (3/3)

• Movies are 2D, but why do we call these 3D animations:
  – Luxo Jr.
  – Toy Story, A Bug’s Life, Finding Nemo…etc. from Pixar
  – Ants, Shrek, Ice Age…etc.
Answer Anyone?

• What are the limits of 2D?

How to Create 3D Contents

• AutoCAD: used for architectures (buildings)
• 3D Studio Max, Softimage…etc.
• Maya is a major production tool used in art schools.
• Problems? It takes an artist, and it’s still hard to make it look real!
3D Photography

• Currently ongoing: National Digital Archives Project.
• How do we digitize the massive assets in various museums?
  – QuickTime VR object movies
  – 3D Scans: Cyberware scanner, Digital Michelangeo

Image-Based Rendering

• Can we build 3D contents from photographs directly?
  – Difference from computer vision?
• Can we make the objects look more real?
  – Difference from texture mapping?
Open Problems

- Obtaining material models from photos/videos.
- High-quality rendering that matches the quality of images taken by digital cameras.
- Animation.