

Holographic Rendering with OpenSceneGraph

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ZEBRA IMAGING

About Zebra Imaging

- Produces both the Imagers and Images
- Large format 850x600 mm
- Color or Monochrome
- Full parallax
- Focus on Government market
- Utilitarian applications
 - Zebra holograms are saving lives every day
- <http://zebraimaging.com/>



About a Zebra Hologram

- Images have pixels, Holograms have *hogels*
- Hogel has orientation-dependent color
- Each hogel is itself composed of 2D image
- Hologram can scale to any size by tiling
- Rigid or flexible mounting
- Can be illuminated with flashlight



About this Hologram

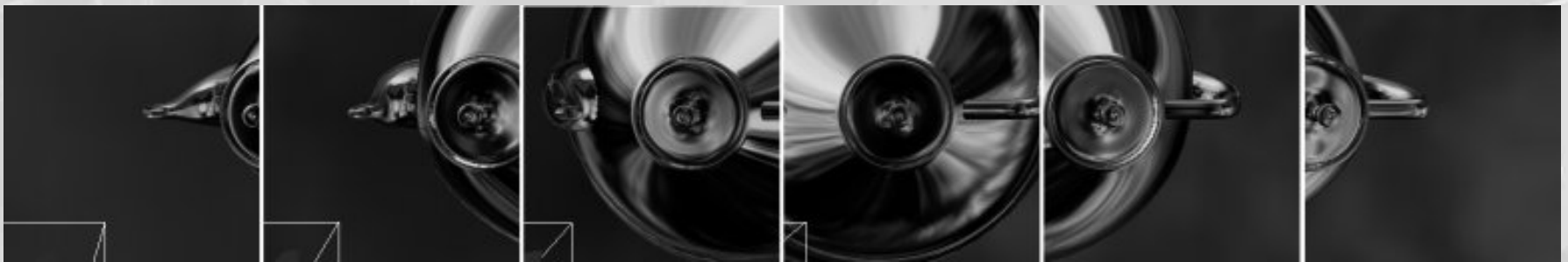
- 600x850 hogels, 256x256 8-bit pixel per hogel
- $0.5 \text{ Mhogel} = 33400 \text{ Mpixel!}$
 - approx 3700 Sony SXRD (8.8 Mpixel) displays
- and it only gets bigger from there.

- Each eye sees 0.5 Mpixel
 - So viewer is navigating the 33400 Mpixel display space with a 1 Mpixel view



How to make a Hologram

- A hogel is a special framegrab from the hogel's location
- 90deg FOV, reverse depth test
- Iterate camera over each hogel



Why OSG to make Holograms

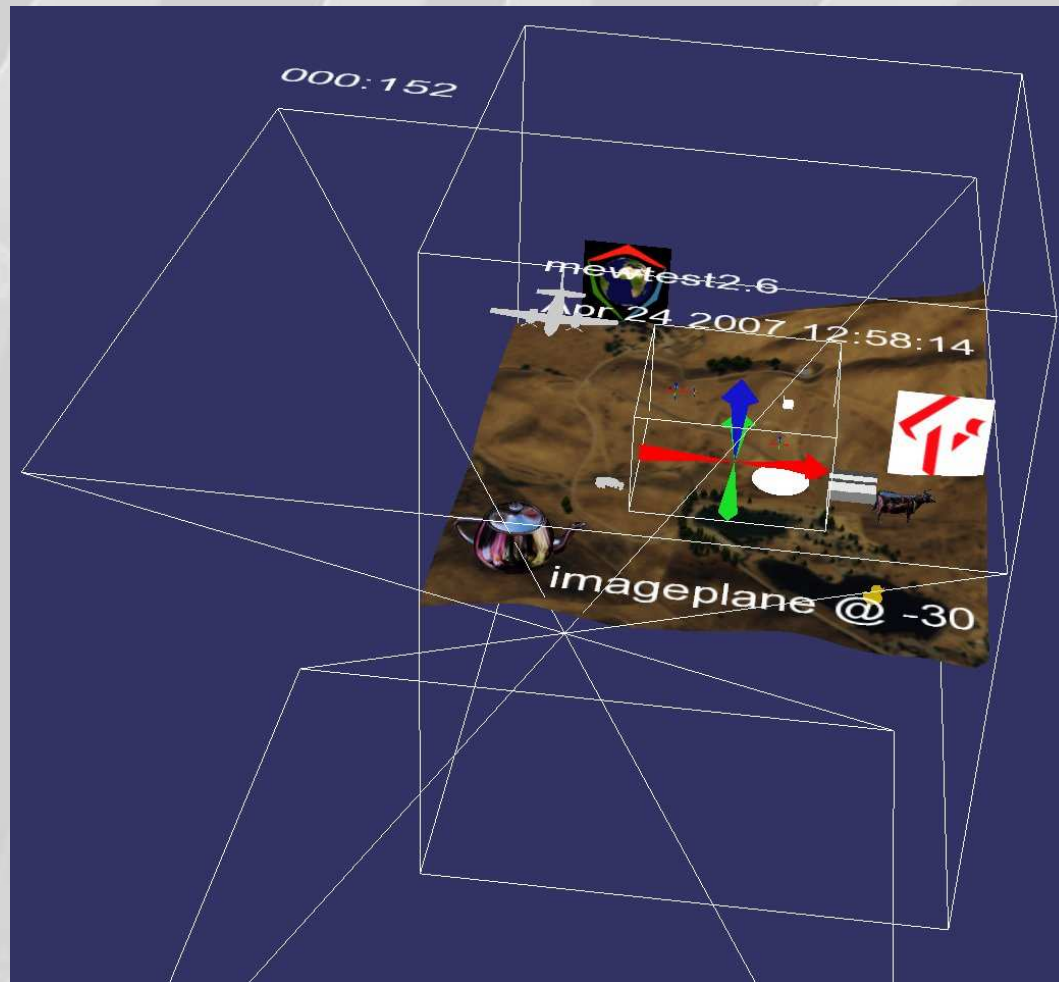
- OpenGL is good interface for legacy
- Scene graph provides higher semantic
- Data compression
 - tgz of pregenerated images : 10:1
 - OSG to generate images : 1000:1



Top-down view of test scene



Hogel camera scanning the scene



Thanks!

- Demo of hogel camera application
- View actual hologram
- More info at: zebraimaging.com

