3-D Hologram Architectural & Sculpting

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History Background Description

- Prof. Stephen Benton professor at MIT and inventor of the rainbow hologram and pioneer in medical imaging and holography.

- Inspiration to holography came from wearing 3D glasses, became interested in the function of optical devices and continued to work in optical physics and optical engineering.

- In 1996 founded the company Zebra Imaging by graduate students that were under direction of Benton.

Zebra Imaging Technology

- Develop digital holograms that are auto stereoscopic, being able to completely view three-dimensional objects without any glasses or goggles, and full parallax, viewpoints from different angles side to side, above and below.

- Developed also 3-D dynamic display, capability of moving objects in the hologram and digital prints.

- Present designs with a higher level of accuracy and detail than in awkward physical models or 3D rapid prototyping without the need for cumbersome glasses or special viewing equipment.

Zebra Imaging Technology Cont.

- Enhances understanding and builds confidence by enabling complex information to be understood quickly, and allows for faster analysis and decision making.

- Use a wide range of 3D data sources, including CAD/ CAE/CAM files, BIM models, aerial photos, radar and laser scans, and files

- Illuminate the hologram with a simple halogen or LED light source, with no special viewing equipment or special computer required.

Auto Stereoscopic

- Method of displaying images with the illusion of depth without any use of goggles or glasses. Which can be approached through a parallax barrier.

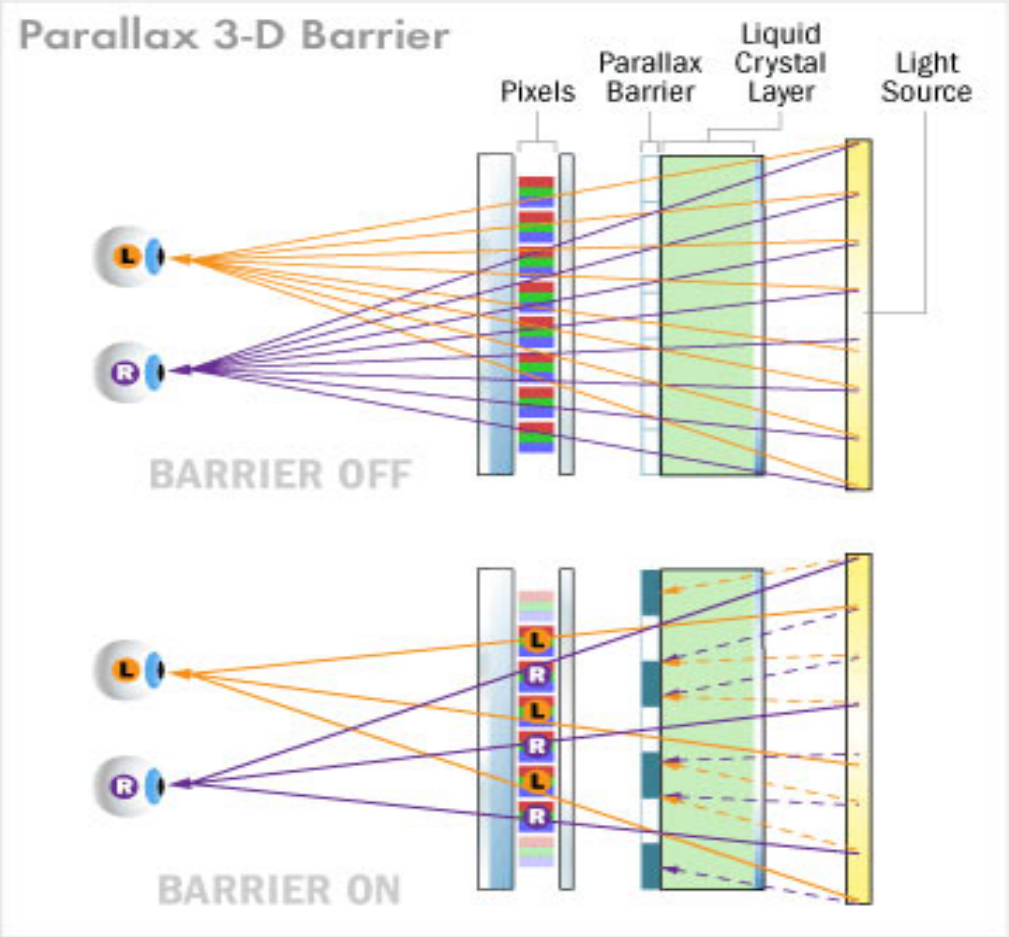
- Parralax Barrier, redirects imagery in different region, which enables the viewer to see a different illusion every time their head moves or eyes redirect elsewhere.

Auto Stereoscopic Example

Nintendo 3DS

- Latest Nintendo product that uses Auto stereoscopic with a parallax barrier.

Parallax Barrier How it Works



-Device placed in front of an LCD screen which allows each eye to see a set of different pixels.

- Each eye reacts to the different pixels which allows the illusion of the image appearing in 3-D

Idea and Inspiration

After reading and doing research on the technology Zebra imaging has been able to create. It allows architecture to be seen and taken to a different level. After seeing different ways artists have presented architectural pieces in galleries and museums it is mind twisting to try to interpret the same architecture through a three dimensional panel that would be laid on a flat surface.

Idea and Inspiration

Example of architectural design at the Queens museum in New York, **Robert Moses panorama of NY**,an example of something that could be present even more detailed and viewed through a complete different dimension as to how it is already presented. Although already aesthtically beautiful and well designed the idea of seeing a virtual panorama replica would be a just as pleasing experience

Robert Moses

Panorama of New York City

Idea and Inspiration

Another example of visually interpreting a three dimensional object in a space at a museum would be

Daniel Spoerri piece at MoMa in New York City.

Daniel Spoerri

Kichka’s Breakfast I 1960

Idea and Inspiration

The project would be displayed on the floor and can be displayed on all four walls of the room where each of the walls has a three dimensional moving object or a three dimensional printed panel with a certain architecture structure or sculpture.

Each viewer would be able to walk into this space where their eyes visually interpret the illusion of a three dimensional. Each of the panels on the wall and the floor contain a parallax barrier enabling the viewer to not have to wear goggles or glasses and still be able to experience the piece in different pieces of work .

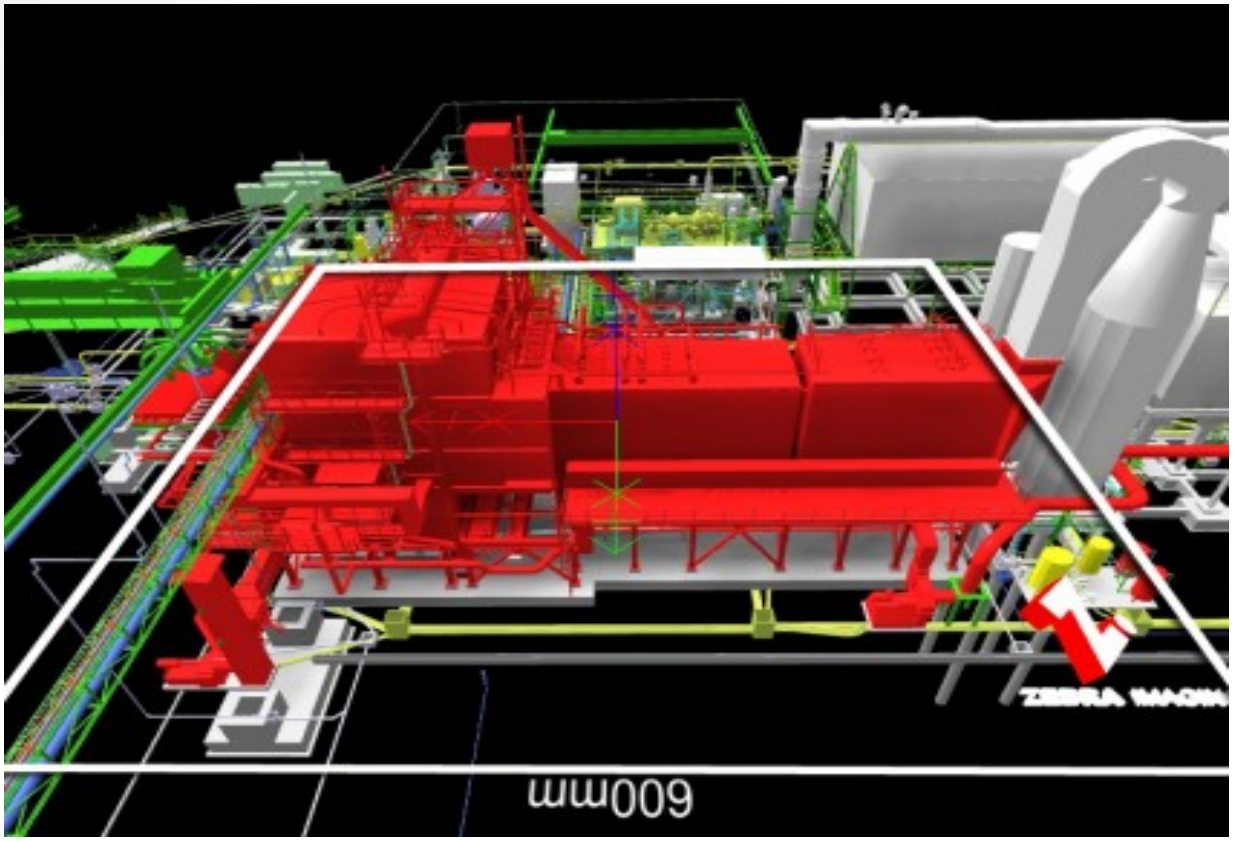
Idea and Inspiration Cont.

- As a continuation of the piece, acknowledging the structure of a urinal in the men's restroom. It would give bring a different dimension to urinal by only have a 3D panel against the wall along with a small portion of the urinal against it.

- The concept of the project would be to bring a virtual dimension to a museum in a way that no one has experienced it therefore being the urinal in the men's restroom or being the three-dimensional room.

Project Concept Design

Developers have allowed the technology to be easily produced through Autodesk software that consists of 3D modeling which later be digitally printed on a plastic plate, tile.



Videos with small examples

http://www.youtube.com/watch?v=0WfFZ-u9MXI&feature=player_embedded

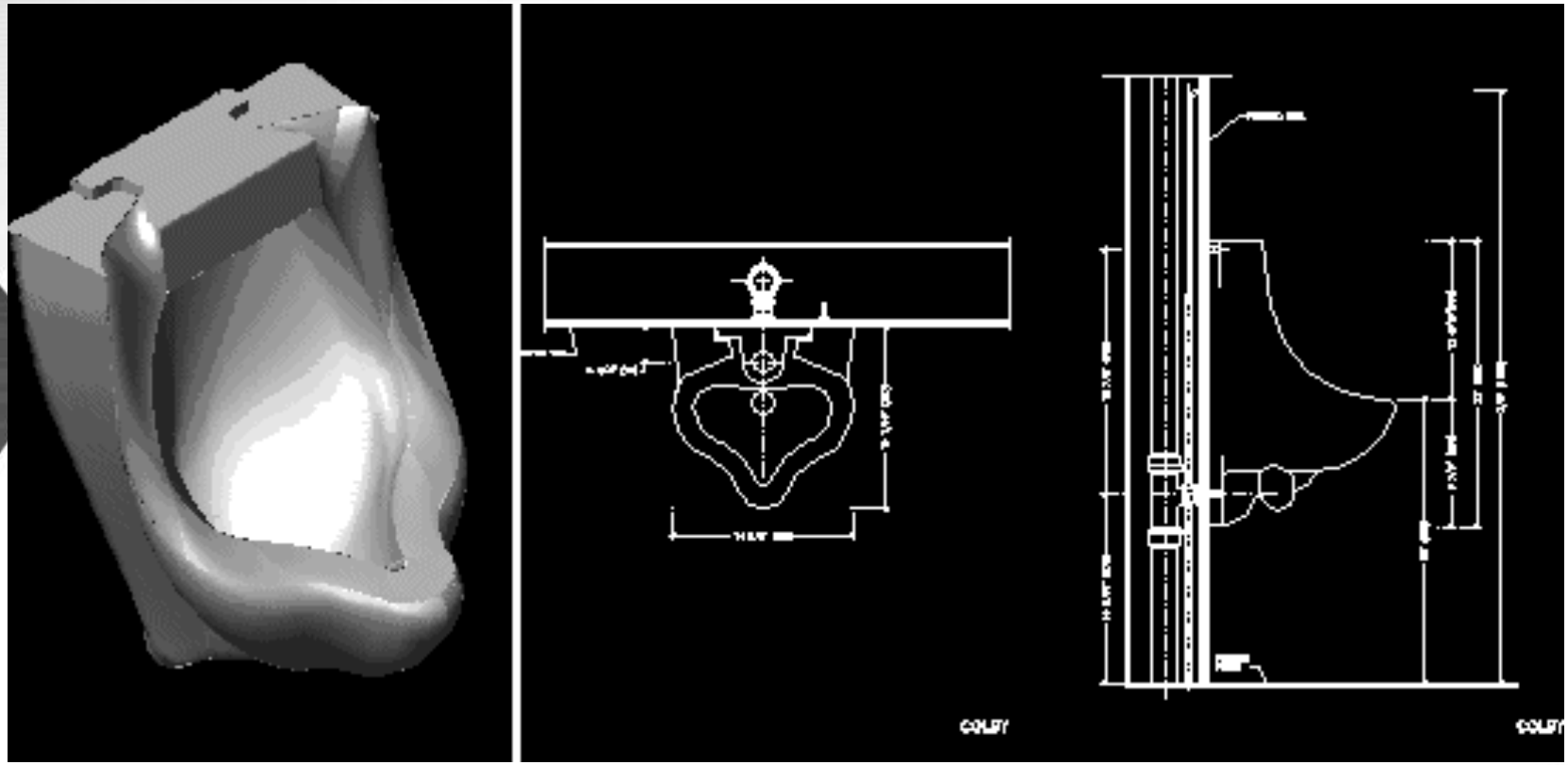
http://www.youtube.com/watch?v=Dg1WsP_sdRg&feature=player_embedded#!

http://www.youtube.com/watch?v=Xp7BP00LuA4

Urinal Sculpting in Autodesk

Something as simple as a urinal can be easily modeled through autodesk software. The Idea would be to take the creation and place it in a place where people would perceive the object different and have unique experience of the visual aesthetic. The Idea behind the urinal would be to just see the urinal in a 3D panel where a small drain would be applied for sewage at a very minimal design.

Urinal 3-D Scuplting

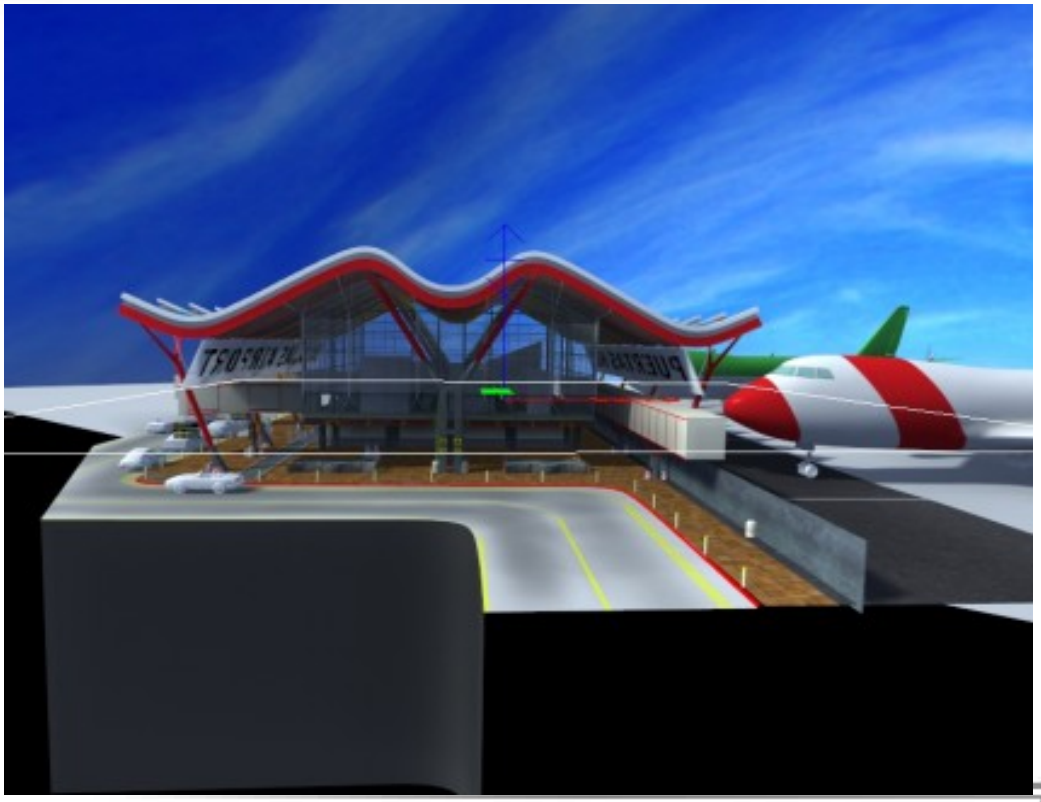


Design in a museum space

Similar to the Queens museum an architectural design would be modeled out and reproduced allowing viewes to walk around on top of the actual design.

Side View of Museum space

With the technology being able to produce visual through a side view. The Museum space would have four of the walls surrounded by a landscape of either more architecture or simply just objects that can create a more detailed and better setting to the center piece.



Replica of Small Architectural concept

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http://www.queensmuseum.org/