

Virtual Reality

by

António Câmara
March 2018

Virtual Reality

Virtual Reality (VR) is the use of computer technology to create a simulated environment. Unlike traditional user interfaces, VR places the user inside an experience. Instead of viewing a screen in front of them, users are immersed and able to interact with 3D worlds. By simulating as many senses as possible, such as vision, hearing, touch, even smell, the computer is transformed into a gatekeeper to this artificial world.

AR Blog, 2015

Virtual Reality

VR glasses

<https://www.pcmag.com/article/342537/the-best-virtual-reality-vr-headsets>



CAVE

<https://www.coursera.org/learn/introduction-virtual-reality/lecture/MsID8/cave-vr-systems>



VR photography

<http://www.vrphotography.com/>



Portugal Digital

1.5 million users at Expo98



Virtual Reality Experiences

World Building Tools

Synthetic Worlds

i.e., Aquarium



Real Image Worlds

i.e. Rock in Rio fly over



Mixed Worlds

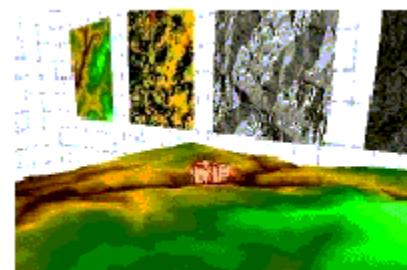
i.e., Dove commercial



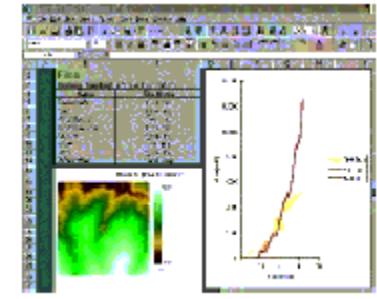
Virtual Reality Experiences

Visualization Tools (immersive and non-immersive)

Virtual data rooms (a)
connected to
standard data bases (b)
i.e., VGIS



(a)



(b)

Image data bases
i.e., YScope



Virtual Reality Experiences

Interaction Tools

Exploration

Enabling fly, walk, bike,
sail, row and drive
using additional hardware
interfaces if required



<http://tinyurl.com/hvzprp6>

Virtual Reality Experiences

Interaction Tools

Scaling

Use scaling capabilities to augment or reduce the size of objects

Filters

Apply vision filters- lense effect, emulate animal vision

Apply sound filters- enhance surround sound



Applications

Entertainment

Disney Cruise,
mixed reality game.
2013, USA

<https://vimeo.com/98774378>



Ayrton Senna VR
immersive experience,
2015, Brazil

<https://www.youtube.com/watch?v=vG8qcC4XXK0&t=1s>



Applications

Entertainment

NBA Fan Zone

<https://www.youtube.com/watch?v=XSYEOFZjVWc>



Arkave Arcade platform by YDreams Global

https://www.youtube.com/watch?v=j7YxeKC_gYI



Applications

Brand Awareness

Coca-Cola World Cup
immersive experience
2014

<http://tinyurl.com/hlmjbqg>



Natura VR photography
<https://www.youtube.com/watch?v=dc3zrQZTMn0>



Applications

Tourism & Leisure

Alqueva Dam,
virtual sailing,
2003, Alqueva

Rock in Rio,
fly over,
2013,
Rio de Janeiro

<http://tinyurl.com/gqgxrd>



Applications

Education & Culture

Tejo Internacional,
non-immersive virtual canoeing
2010, Castelo Branco

<https://www.youtube.com/watch?v=mZRkp2NWbc0>



Lego Aquarium,
non-immersive experience
2012, Copenhagen (Lego-Intel)

<http://tinyurl.com/hza5fg4>



Olympic and Para-Olympic
Museum, Rio, 2016

<https://www.youtube.com/watch?v=pYFPmKcEit8>



Applications

Health

YScope,
natural interface
to neurological image
data bases
2012, Hospital Santa Maria



<http://tinyurl.com/h8wuyq3>

Applications

Urban Planning

Groningen 3D,
2004, Holland

Barreiro 2006,
Portugal

Parque Olimpico,
fly over,
2015, Rio

<http://tinyurl.com/jju6nnt>



Applications

VR and Storytelling



<http://www.ydreamsglobal.com.br/workshopvr/?lang=pb>

Additional readings

See <https://stanford.edu/class/ee267/>

asc@fct.unl.pt

www.ydreamsglobal.com