Virtual Reality

Team Hoof-Hearted

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(1) http://electronics.howstuffworks.com/gadgets/other-gadgets/virtual-reality.htm
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What is Real? How do you define Real?

• “If you're talking about what you can hear, what you can smell, taste and feel, then real is simply electrical signals interpreted by your brain.”

-Morpheus (The Matrix)
What is Virtual Reality?

- Engineered illusory environment
- It transports the user
- It does more than just pictures
- Laptop vs. virtual reality simulator

(1) http://io9.com/5288859/7-virtual-reality-technologies-that-really-work
Different Types

1. Immersive (most common)
2. Non-immersive
3. Neutral-Direct
Immersive

- Use of goggles and other devices
- Cut off from reality
- Normal sensory input is replaced
- Private experience
- Participants can be represented by anything

Non-Immersive

- Requires no personal hardware
- Persons enter environment
- Normal sensory queues supplemented by additional sensory stimulus
- Communal experience
- Participants remain themselves in the environment

Neutral-Direct

- All types of sensory input are ‘jacked’ into the proper areas of the brain
- Indistinguishable from normal sensory inputs
- Person's consciousness is entirely transferred into virtual reality
- Sensations exactly identical to "real" ones could be created

Applications: Medicine

Pain Relief

Phobias and Addictions

Surgeon Training

Neuroscience Research

(1) http://www.hitl.washington.edu/research/vrpain/SCIAMFin.pdf
(2) http://www-kismet.iai.fzk.de/KISMET/docs/UKMITATi1.jpg
Applications: Medicine

Engineering Advancements Needed:

- Level of Touch Detail: Electrohydrological Fluids
- Level of Visual Detail: Resolution & Refresh Rates
- Artificial Intelligence: Behavioral Research
Entertainment

• Art
  – Diving into the Art
  – Walking into a Canvas
    • www.canvas.uiuc.edu
  – Traveling to different continents in art galleries
  – Guggenheim Virtual Museum

• Video games
  – Largest VR Industry in the world
  – Making the Jump to 3-D
  – PS-Move - Nintendo Wii – Xbox Kinect
  – Nvidia 3D Vision Project
  – MMORPGS

Entertainment

• Sex Industry
  – Massive market
  – Extra sensatory simulation
  – Maintaining a long distance relationship
  – Dating Websites


• Learning through experience

• Safety

• No repercussions
Religion

- Location
- Personal attention
- education
- Religious experiences

http://isgodcatholic.wordpress.com/2011/08/03/was-the-last-supper-a-passover-seder/
Military Applications

- Flight Simulators
- Parachuting Simulators
- Field Operation Simulators
- Virtual Reality Exposure Therapy to help treat Post Traumatic Stress Disorder (PTSD)

Link

http://www.navy.mil/view_single.asp?id=3523

Negative Effects

- Can’t distinguish between virtual environments and reality
- Dulls imagination and creativity
- Numbs sympathetic feelings
- Creates interpersonal disconnections


http://www.vortaloptics.com/blog/2011/01/the-disciplined-technophile/
• Up to now there is no alternative to life.
• Life in the “real world” (Computer), or death.
• Processing Speed is keeping us behind.
• Goal: eliminate all restrictions
  — Virtual Reality is the only way to escape the laws bound by the universe.
  — It will become the norm, the destiny.
"A bold scientist will be able to tap the contents of his mind and transfer them into the metallic lattices of a computer... At last the human brain, ensconced in a computer, has been liberated from the weakness of the mortal flesh... It is in control of its own destiny and no longer constrained in its span of years - such a life could live forever."

- Robert Jastrow
Resources

Questions?