

Introduction to Interactive 3D

Introductions:

- Name
- Background
- 3D Experience
- Current Interest in 3D
- Anything else?

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Inspirational Oration



But First a Word About Ninjas:

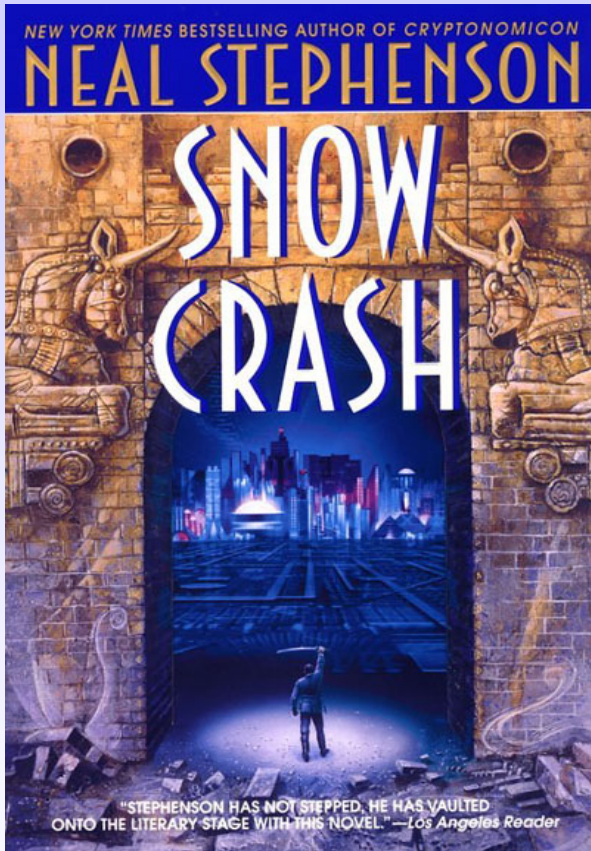


Ninjas were a feared group of deadly spies and assassins plying their trade in feudal Japan. Renowned for their martial skill, exotic equipment and almost magical powers of stealth and deception, no challenge was too great for these elite warriors.

Female ninjas are called *kunoichi*

Ninjas sometimes flip out, but are still the real ultimate power

Snow Crash



Neal Stephenson's best selling 1992 science fiction work Snow Crash details a highly compelling conception of "the Metaverse" –a networked, hyper-realistic virtual universe. His main character, Hiro Protagonist, is one of the first computer programmer / ninja fusions in modern literature.

William Gibson coined the term "cyberspace" in 1982's Neuromancer, but Describes it as:

"A graphic representation of data abstracted from the banks of every computer in the human system... Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding "

Boring! [IE very little sword fighting].

Digital Culture



King Kong: Not a "real" Gorilla!

I think of ITP as a program dedicated to the study and production of digital or computer mediated culture.

And yet, when you look at the state of the "digital world" as we know it today, it seems there's a 50 ton gorilla in the room that our emphasis on blogs, flash, and pixel art seems to ignore.

3D is **BIG** [large]




Like King Kong [And Dinosaurs]
3D is BIG!

In recent years computer generated 3D content has become a significant and growing component to a wide variety of technical and artistic endeavor

The 3D World

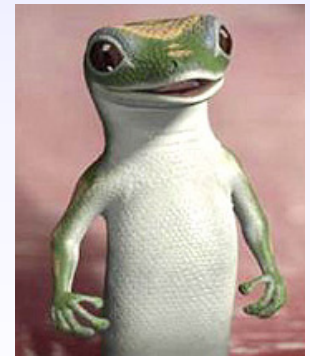
- 3D for 2D
- CAD
- Games
- Vis Sim / VR

# 1  Titanic \$600.788 Release Date: <u>December 19th, 1997</u>	# 2  Star Wars: Episode IV - A New Hope \$460.998 Release Date: <u>May 25th, 1977</u>	# 3  Shrek 2 \$436.721 Release Date: <u>May 19th, 2004</u>
# 4  E.T. the Extra-Terrestrial \$433.005 Release Date: <u>June 11th, 1982</u>	# 5  Star Wars: Episode I - The Phantom Menace \$431.088 Release Date: <u>May 19th, 1999</u>	# 6  Spider-Man \$407.681 Release Date: <u>May 3rd, 2002</u>
# 7  Star Wars: Episode III - Revenge of the Sith \$380.262 Release Date: <u>May 19th, 2005</u>	# 8  The Lord Of The Rings: The Return of The King \$377.027 Release Date: <u>December 17th, 2003</u>	# 9  Spider-Man 2 \$373.378 Release Date: <u>June 30th, 2004</u>
# 10  The Passion of the Christ \$370.500 Release Date: <u>February 25th, 2004</u>	# 11  Jurassic Park \$357.067 Release Date: <u>June 11th, 1993</u>	# 12  The Lord Of The Rings: The Two Towers \$340.655 Release Date: <u>December 18th, 2002</u>
# 13  Finding Nemo \$339.714 Release Date: <u>May 30th, 2003</u>	# 14  Forrest Gump \$329.693 Release Date: <u>July 4th, 1994</u>	# 15  The Lion King \$328.538 Release Date: <u>June 15th, 1994</u>
# 16  Harry Potter	# 17  The Lord Of	# 18  Star Wars:

3D for 2D

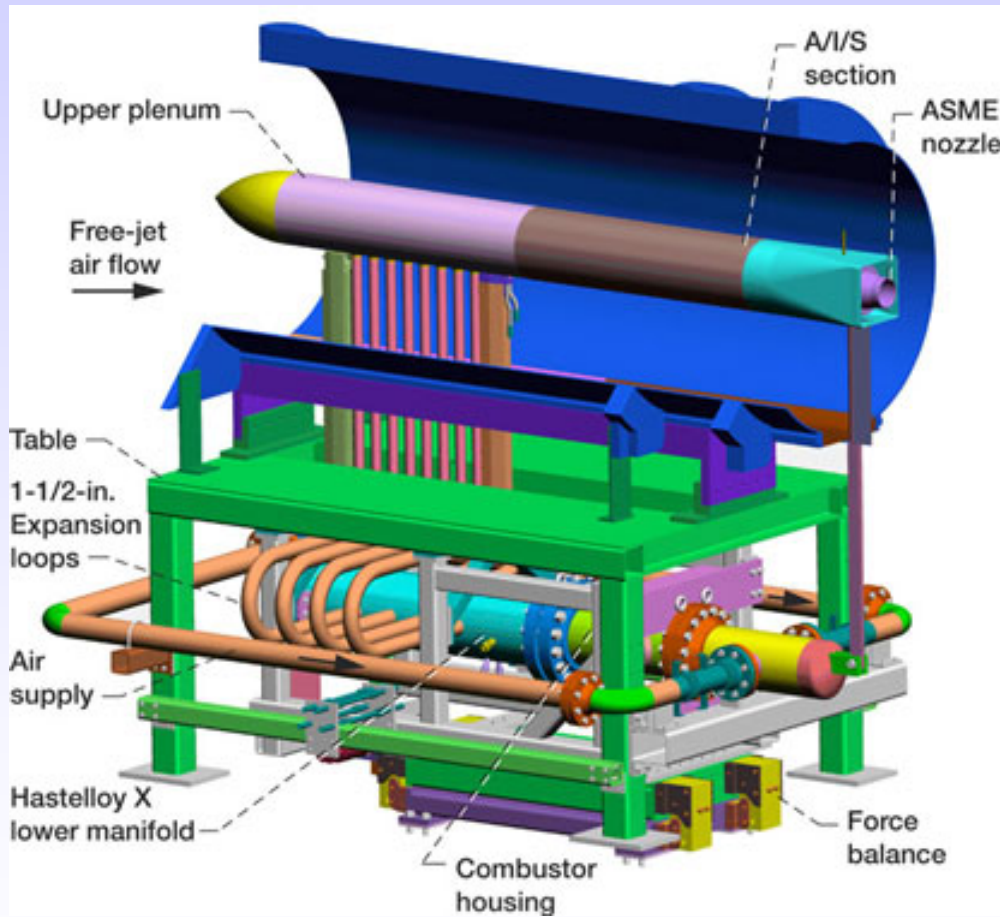
At Right is a list of the top 100 grossing films of all time. What percentage contain significant computer generated 3D visual effects?

And let's not forget about all those lovely commercials:



Imagine a Lizard that talks!
And sells car insurance!

CAD



A nice rendering of a... um.....????

Within a few years, perhaps every physical thing you own will begin it's life as as a virtual model.

Not to mention buildings, boats, and airplanes!

Games



Note: Not a Ninja

But you won't care about any of that stuff because you will be a 56th level Orc Warrior-Mage on the most elite WOW PK server!

Well, maybe not you, but that is true of 5 million of your fellow "humans."

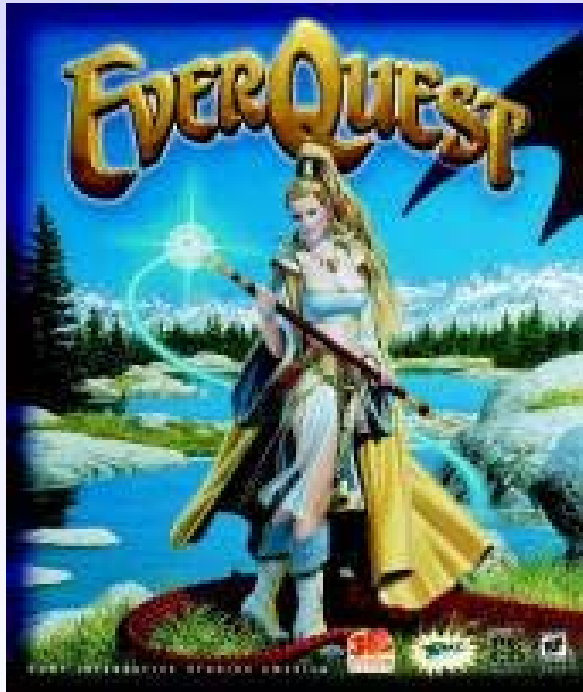
Big Games



Halo 2 is the most profitable single-day piece of entertainment ever, exceeding \$125 million in sales during its first 24 hours on the market. It has sold well over 6 million copies.

The Unreal Estate Boom

Because thanks to Wired we all now know that:



Then VS Now

We used to play games

With this:



Now we use this:



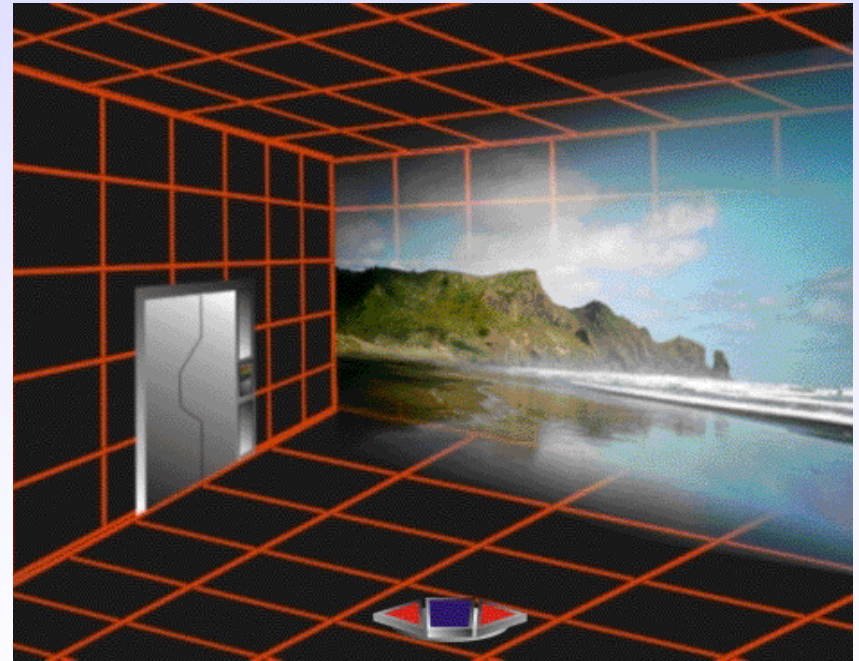
How do we bridge the Gap?

When will the average person be able to move from

Here

To

Here



Alternative Interfaces

Some smart people have spent a lot of time thinking of better ways with which to interact with computers.



Virtual Reality



While VR has been percolating around in popular consciousness for decades now, we are beginning to see signs of [ahem] real life - in the industry.

CyberEdge information services seems to think it was a \$43 billion industry in 2004.

Note: Also not a Ninja

History Of VR



While some authors will date the beginnings of the discipline to even before the development of the first computer machinery, it is generally held that the seminal moment for VR occurred when Ivan Sutherland described his "ultimate display" at 1965 International Federation for Information Processing conference. Therein he effectively detailed his idea for a tracked, stereoscopic head mounted display (HMD) of which he'd create a prototype by 1968. Like much "high tech" of the time, this invention's utility was mostly confined to military and university research purposes, until consumer level versions began appearing in the late 80's following the growth of the personal computing industry.

Space War! was considered the first interactive computer game. It was created by students at MIT: Slug Russell, Shag Graetz, and Alan Kotok. The display featured interactive graphics that inspired future video games. Using early versions of joysticks, players fired at each other's spaceships and navigated their ship away from the sun and the enemy's ship.

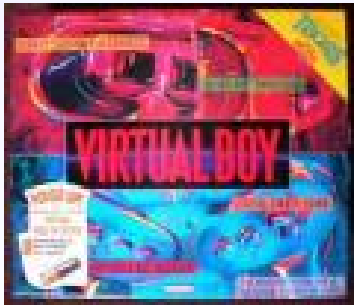
History Of VR



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This theme would later be reprised when SGI engineers were developing the first 3d flight simulations in the 1980's.

History Of VR



During this period we see the invention of the data glove by Gary Grimes at Bell Labs (1981), pioneering work by Scott Foster on 3D sound localization (1987), the introduction of the first magnetic body tracking system by Pohemus, Inc. (1987), and the coining of the phrase “virtual reality” by Jaron Lanier from VPL Research (1989). Thus, just before 1990, essentially all the technical elements of classical VR had been developed to the point that we even saw Nintendo introduce the “Virtual Boy” interface for its consumer home video game system.

History Of VR



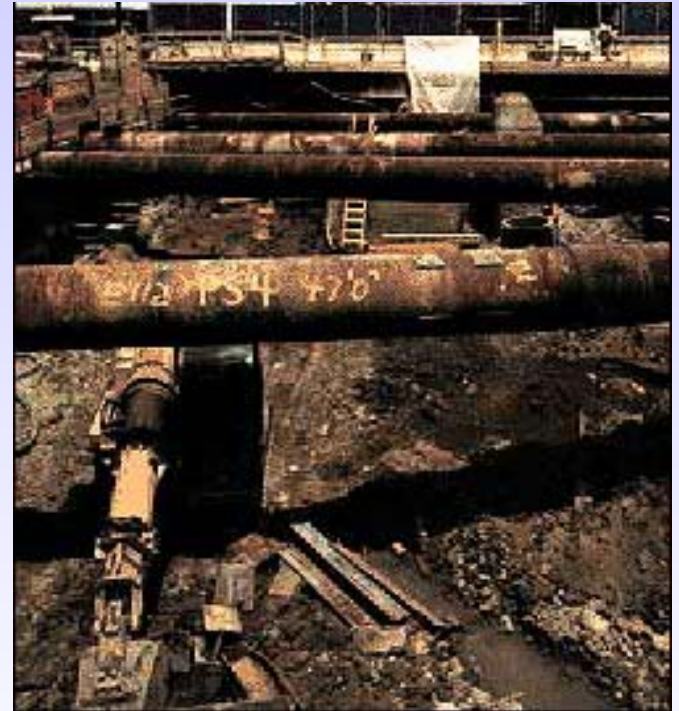
The early 90's saw the fairly frenetic development of an industry around these technologies, with a plethora of commercial enterprises contending to market variations on these products.

History Of VR



One might say that VR's Trough of Disillusionment began around 1995 and continued through the late 90's as several of the initial pioneering companies went bankrupt or were sold under financial duress. Researchers speak of this time as one during which grants were much harder to come by and available talent was largely sucked up by the ascendancy of internet application development. This is the period during which the industry's efforts to commercialize the technology at a broad based consumer level reached its lowest ebb.

History Of VR

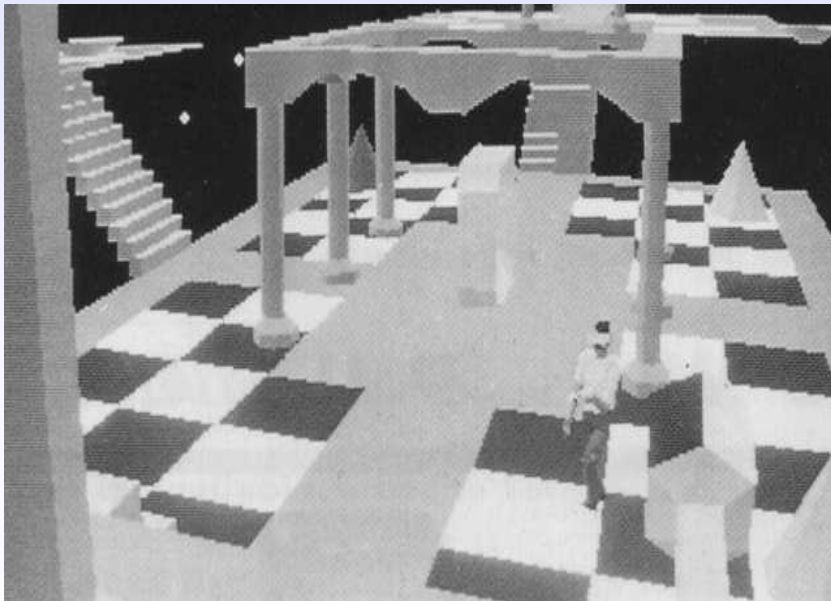


I liken this period to Boston's massive underground infrastructure project : The Big Dig

Graphics

As processor speed, memory capacity, & hardware accelerated graphics processing capacity have steadily march to the beat of Moore's law, our ability to render Virtual Environments has increased accordingly.

Dactyl Nightmare (1991)



Doom III (2004)



Communications

Increasing bandwidth, widely deployed, radically alters the value proposition of interacting in virtual environments. To the point where...

2400 baud modem



Apple Airport



Classic VR Paradigm



Remains Rare

Because their target audience is limited, and they tend to be extremely expensive.



+



=



Promises Promises

Consumer skepticism has so far been warranted.



+



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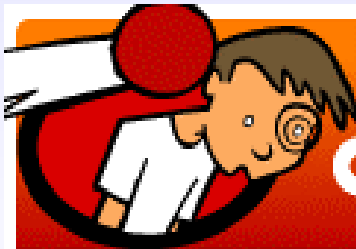
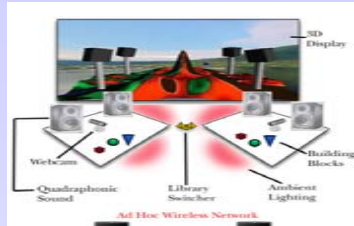


However

Hope springs eternal.....



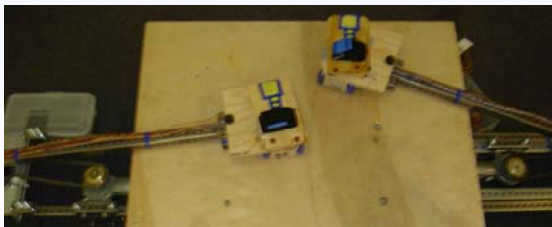
The Opportunity



What is needed to surmount this impasse is an integrated system of IO devices and software that recapitulates the classic VR metaphor, but with vastly improved technology, and more creative, compelling applications. This sounds expensive, and it will be, but it seems that 1) people are willing to spend a lot more of their discretionary income on game related home entertainment systems, and 2) much of the technology has already been developed to consumer price points, and it is now much more a question of vision combined with effective integration to deliver a striking advance in human-computer interaction.

Given ITP's interests in homebrew gadgetry, user-centered design, wearables, games and social computing, it seems we are ideally positioned to begin proposing creative, compelling solutions to the VR conundrum.

Does one of you have a killer application lurking inside? Maybe. But first you must become....



That's right, A 3D Ninja!

