RV - AULA 10 - PSI3502/2018

VE and Video Games

Outline

Examine the relationship between VE and video games.

Two types: high production AAA games with real-time 3D graphics and games that are virtual spaces for social interaction.

Examine how research in VR has influenced gaming hardware.

Virtual Environments and Video Games
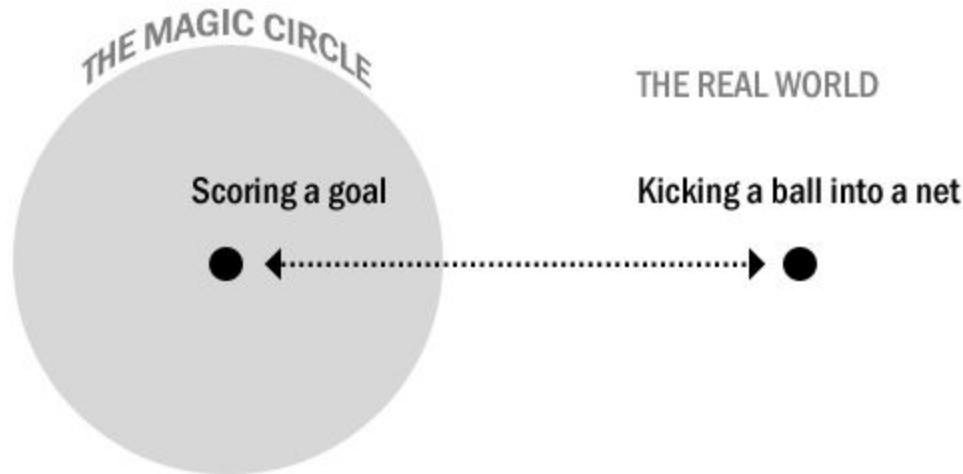

Elder Scrolls V - Skyrim

Many video games are clearly recognizable as virtual worlds.

Are all video games virtual environments?

Are video games necessarily a subset of VEs?

What is a Game?

J. Huizinga, in his book *Homo Ludens: A Study of the Play-Element in Culture*, defines games through the concept of a magic circle. A magic circle is a virtual boundary that separates the environment in which human activity known as game take place.

What is a Game?

All games are temporary virtual worlds, each with its own environments and set of rules. The existence of a specific set of rules is another defining property of a game.

The combination of goals, rules and means of interaction results in meaningful interaction, another important property of games as concepts.

Games as VEs

Not all VEs can be considered games, as they for example lack preset goals that would structure players' actions and interactions with VE.

Not all games are recognized as VEs, for example: Candy Crush.

Two Paths

Some games can be considered VE because of their content and the nature of their graphical representation. These games are immersive virtual worlds with realistic real-time 3D computer-generated graphics.

Two Paths

In contrast, some games can be considered VE because of their social interaction that they provide to their players. Some games unite both criteria, as in the case of Massive Multiplayer Online games (MMOs).


World of Warcraft

Video Games Monetization Models

The electronic interactive entertainment industry accumulated almost $138 billion in revenue in 2018.
(https://www.gamesindustry.biz/articles/2018-04-30-global-games-market-to-hit-usd137-9-billion-this-year-newzoo)

The first commercially successful games like Pong were marketed as coin-operated arcade machines.

https://www.lifewire.com/pong-the-first-video-game-megahit-729739
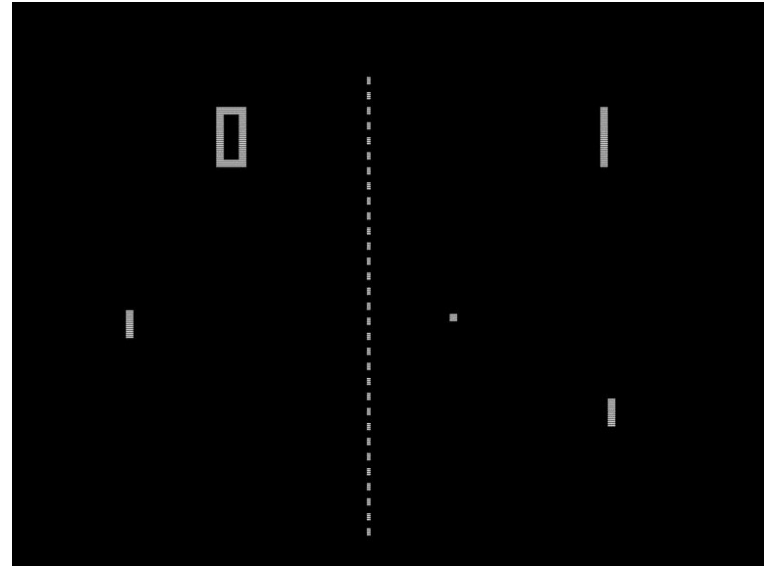
Video Games Monetization Models

With the arrival of broadband and smartphones new methods of software distribution begin to affect the video game industry. The **premium downloadable** model briefly dominated the market of mobile games.

Two factors play an important role in marketing and monetization of video games:

1. Acquisition of players;
2. Retention of players.

Coordinated Multi-Server Architecture Pros and Cons

Pros:

Dynamic sharing of the workload between clusters of servers and individual servers within one cluster and a large redundancy.

Cons:

Very complex network structure, as communication between servers within clusters needs to be treated separately from the communication between clusters and between servers and client machines.

Packaged Goods Marketing Models

Packaged goods, or premium model, is one of the monetization models in the video game industry. Video games are sold in physical media. The main distribution channels are retailer chains.

https://www.tomsguide.com/us/digital-vs-physical-games,news-26164.html

Open World Games

The world is procedurally generated from a set of predesigned building blocks, which are combined according to a set of predefined rules.

Multiplayer Games and Social Interaction

https://www.windowscentral.com/overwatch-review

Multiplayer games are a common environment for multiple users. They provide a space and means of communication and social interaction. Two categories of interaction stand out: competition and collaboration.

Social Games

Social games are a special subset of multiplayer games. Social games were initially developed for social networks such as Facebook, but have since transitioned to mobile platforms. Most social games use a free-2-play (F2P) monetization model. In this model, monetization is achieved through the mechanism of in-application purchases (IAPs).

http://techland.time.com/2012/09/05/farmville-2/

3D Graphics in Video Games

The concept of real-time 3D computer-generated graphics originates with the same research in HCI which spawned VR as a concept. The first example of application of 3D graphics in video games is found in a game called Maze War.

https://www.youtube.com/watch?v=AIPBE4crHxc

3D Graphics in Video Games

Textured 3D graphics were employed for the first time by Wolfenstein 3D developed by iD Games in 1992. 3D gaming became mainstream with Doom!, developed by the same company in 1993.

https://doomwiki.org/wiki/Spiderdemon

3D Graphics in Video Games

3Dfx introduced *Voodoo Graphics PCI*, the first hardware accelerator for PC computers in 1996.

Three years later, Nvidia introduced the first true GPU device, *GeForce 256*.

https://pt.wikipedia.org/wiki/GeForce_256

3D Graphics in Video Games

The introduction of the first iPhone by Apple in 2007 permitted development of mobile 3D games. The move toward mobile devices also motivated the renaissance of 2D graphics on game.

https://smartphones.gadgethacks.com/how-to/gaming-9-best-free-action-games-for-iphone-android-0178619/

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