

# Introduction to videogames

Videogames Technology  
Asignatura transversal

Departamento de Automática

## Objectives

- Contextualize game development
- Introduce basic vocabulary

## Bibliography

1. Desarrollo de Videojuegos, Arquitectura del Motor de Videojuegos. UCLM.

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# Motivation

## Why videogames?

- They involve all the Computer Science disciplines
- Exciting problems from an intellectual perspective
- Benchmark for AI
- Career opportunities
- They are fun!

# Definition (I)

Vallejo

A videogame is a graphical application in real-time with an interaction between the user and the game

Real-time: **In this context**, it means the need of generating a frame rate

Interaction: Joystick, keyboard, mouse, body, ...

## Definition (II)

### Alternative definitions:

- A play activity with rules that involves conflict (I. Scheiber)
- A game has “ends and means”: an objective, an outcome, and a set of rules to get there (D. Parlett)
- A game is an activity involving player decisions, seeking objectives within a “limiting context” (i.e. rules) (C. Abt)

Game rule = game mechanic

### Why a videogame is fun?

- Highly recommended reading: Raph Koster. A Theory of Fun. O'Really, 2nd edition. 2014.

## Definition (III)

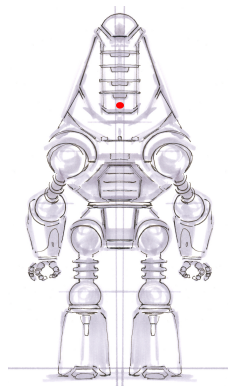
A personal perspective

Videogame = Video + game

# Definition (IV)

## Elements to take into account

- Story (characters, goals, dialogs, etc)
- Graphics (3D models, animations, videos, etc)
- Sound (Music, sound effects, voice, etc)
- Logic (mechanics, programming, etc)
- Interface (HUD, user interface, etc)
- Gameplay
- Playability





# Videogames development (I)

## Topics involved in videogames development

- Personal computers
- Microprocessors development
- Peripherals (specific for videogames)
- 3D technology
- Internet
- Videogames engine development
- Physics engines
- Graphical engines
- Software engineering
- Artificial Intelligence (AI)

# Videogames development (II)

Elements involved in videogames development:

- Human-machine interfaces
- Social networks
- Mobile technologies
- Tablets
- Cell phones
- Virtual Reality

# Industry (I)

## Industry involves

- Development, distribution, marketing and sales
- Software and hardware

Videogames generates more business than pictures and music

- 57,6 billion euros in 2009, 91 in 2016

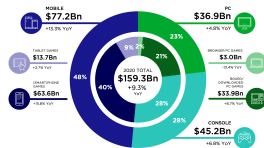
Average videogame cost: 7.4 - 9.7M €

- Consolited franchises



## 2020 Global Games Market

Per Device & Segment With Year-on-Year Growth Rates



Source: Newzoo | 2020 Global Games Market Report | April Update  
newzoo.com/globalgamesreport



**\$77.2Bn**

Mobile game revenues in 2020 will account for 48% of the global market.

# Industry (II)

- PCs decrease as consoles increase sales
  - From mid 80's consoles are the main platform
  - Then relegated by mobile devices in the 2010's
- Best revenues are in software
  - Hardware sold at a loss

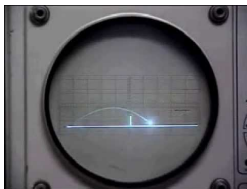


# Overview of Videogames

## History (I)

We can distinguish the following chronology

1. Videogames pre-history: Analogic hardware
2. 80's: 8 bits. (Spectrum), (Amstrad), ...
3. 90's: 16 bits. (Amiga), (Atari), Game Boy, ...
4. 2000 to now: 32/64 bits. PCs, consoles



# Overview of Videogames

## History (II)

Check out these videos:

- (Video past)
- (Video future)
- (Video suggested)