VR, AR, & Gamification

26 Juillet, 2023

Overview of Today

Time	Topic
14h00 - 14h10	Intro
14h10 - 14h25	Technical aspect of VR/AR
14h25 - 17h00	Workshop + final presentation check

14h10 - 14h25

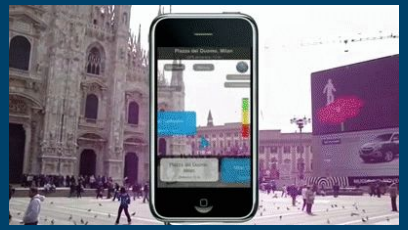
Technical aspect of VR/AR

Virtualisation?

Virtualisation refers to **technological devices that enable an environment to be digitally simulated using a computer.**

Virtual reality

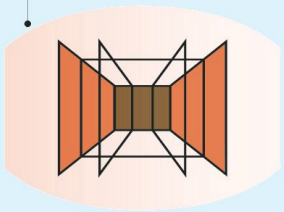
Augmented reality

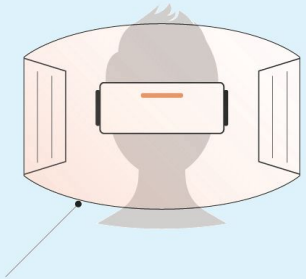


Categorising technology

Virtual Reality (VR)

Fully digital environment

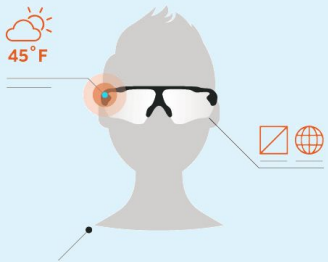




A virtual experience,
cut off from the real world

Augmented Reality (AR)

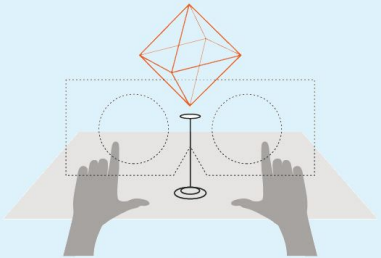
Real world with
digital overlay

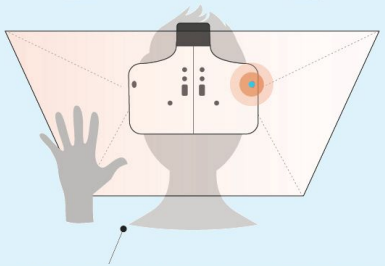


The real world remains at the heart of the
experience, enriched by virtual details

Merged Reality (MR)

Real and virtual are intertwined





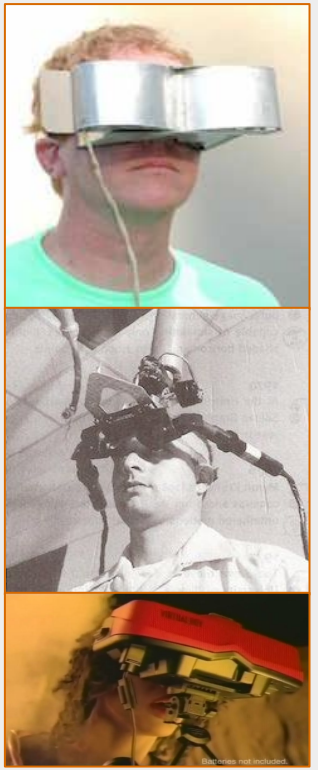
Interaction and manipulation of the
physical and virtual environment

Technological developments in VR accelerating since 2012

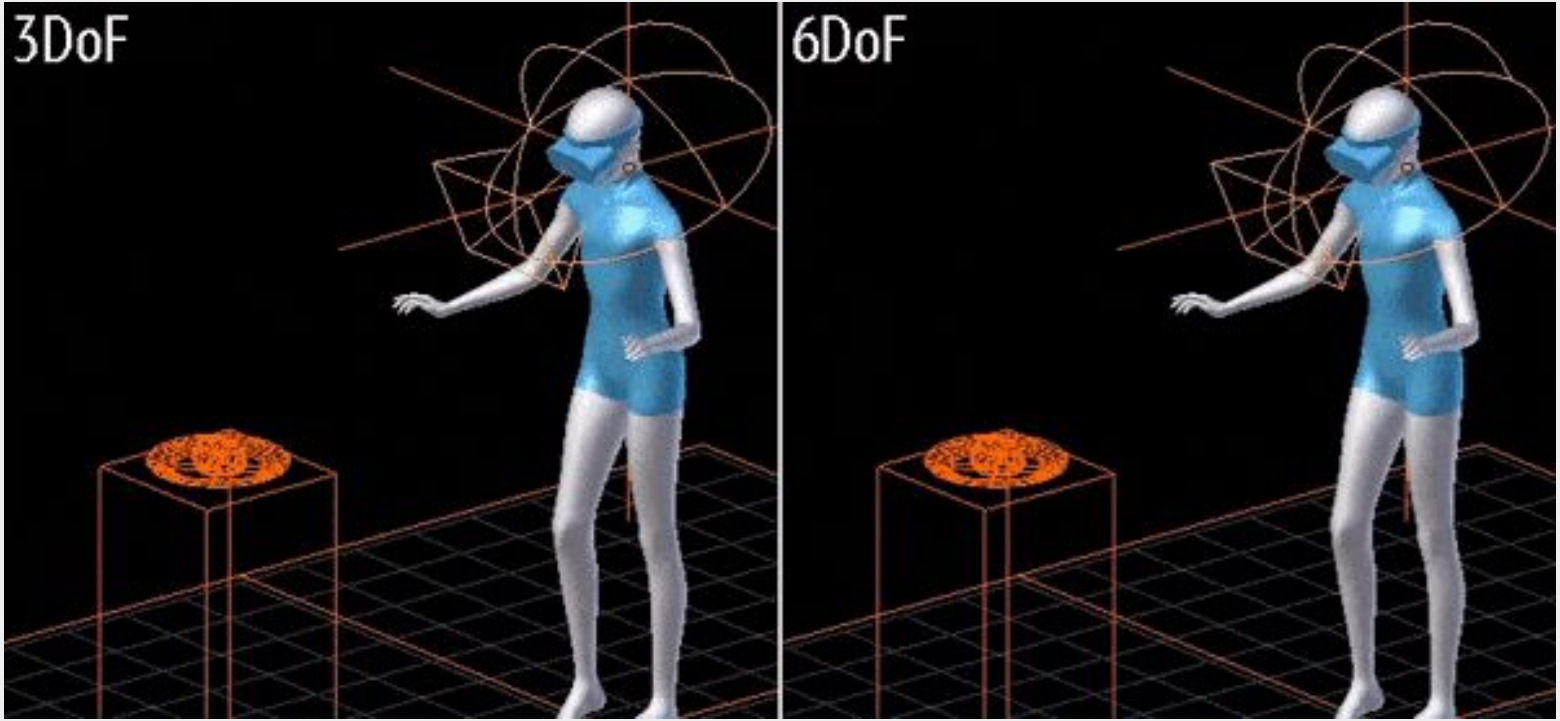
While the emergence of virtual reality with a headset can be **traced back to 1960** (Telesphere Mask), it is really since 2012 and the release of Oculus that the quality of VR's interactive features and its accessibility (price, distribution system) **have made it approachable for the general public**.

The almost constant increase in the power of graphics cards and the emergence of software that allows a small team to create more beautiful experiences without a great deal of technical knowledge have expanded the catalogue of experiences exponentially.

This combination of factors means that it is now possible to prototype rapidly, at low cost, and connect biometric sensors that are useful in the medical field.



3dof vs 6dof



Roomscale vs Standing

1st generation

Rotation-only headsets and controllers (known as "3dof")

Wired headset (connected to a computer)

Razer OSVR

Oculus DK1

Stand-alone headset (without computer)

Google cardboard

Oculus Go

2nd generation

+

Headsets and controllers with the ability to rotate and move in space (known as "6dof").

Wired headset (connected to a computer)

Oculus Rift

HTC Vive

Stand-alone headset (without computer)

Oculus Quest

Pico Neo 2

3rd generation

Incorporates information directly from the body (biofeedbacks, hand/eye tracking, etc.)

Heart rate and electrodermal activity sensor

Imotions EDA / GSR

Imotions EDA / GSR

Hand tracking

Oculus Quest

Haptx gloves

Body tracking

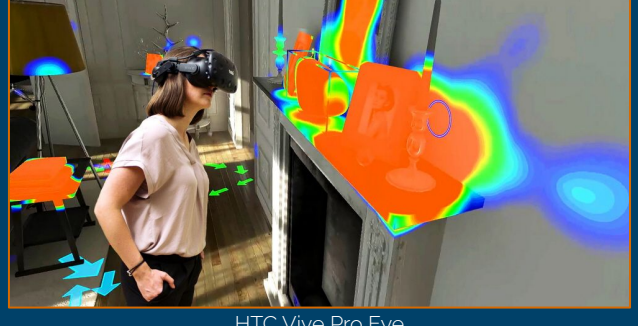
TESLASUIT

Xsens MTx IMU

Electroencephalogram

Neurable EEG

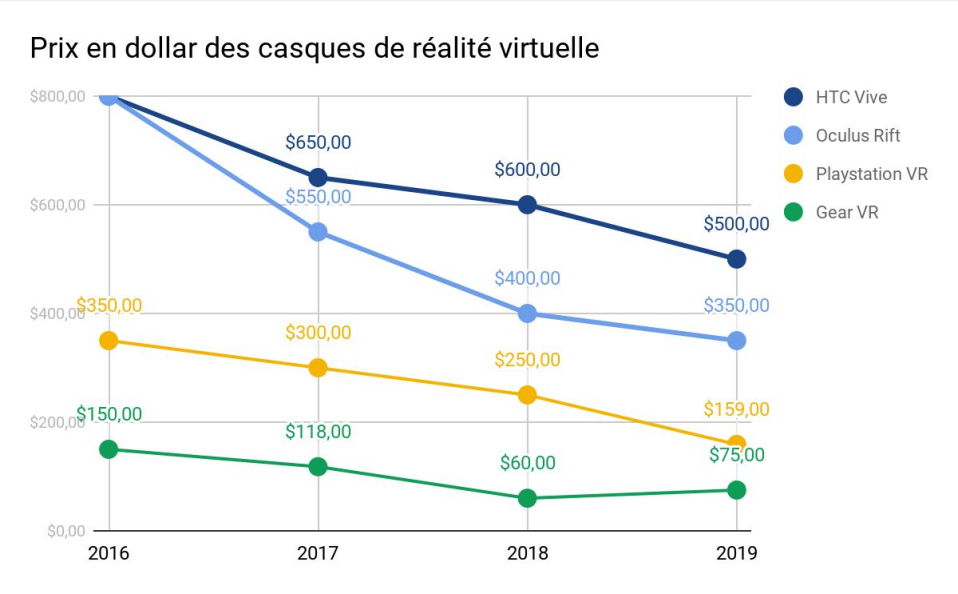
Eye tracking



HTC Vive Pro Eye

History of the price drop

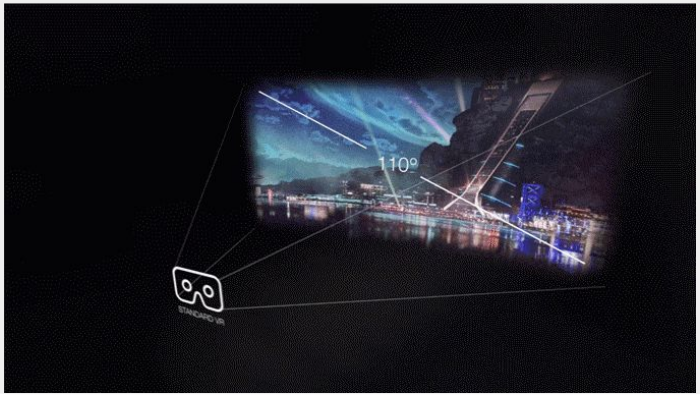
Headsets have never been so affordable: dropping below €500



In 1987, the price of this headset (Eyephone 1) was around $9,400, or nearly $22,000 today.

The latest headsets for the industry

1.2 Millions of pixels ————— > 70 Millions of pixels



The latest headsets offer twice the coverage of the visual angle, and a screen resolution that exceeds that of the human eye (70Mp compared with 60Mp). This means that the human eye no longer perceives pixels, and the image appears perfectly clear.

These headsets will not be available to the general public for a long time, and they require the use of very powerful computers.

14h25 - 17h00

Workshop

Presentation format:

- Presentations will take place **july 28th from 2pm to 4pm, in room 601**
- Presentation are **10 minutes long** —> you'll have a 1-minute grace period after which 0,5 points will be deducted for every 30 seconds of additional time
- It covers the following information:
  - Title
  - Description of sample client
  - Presentation of the VR/AR game/product that you have chosen
  - Original business model of the VR/AR game/product
  - The problem your LLM integration is solving and how this could benefit the original business model
  - The data that you're hypothetically getting from the VR/AR game/product
  - A demo of how the LLM will be integrated
  - What did you learn while creating this project/ what was challenging ?

Grading system:

- Your overall grade is composed as follows :
  - 66% will be your final presentation and project quality:
    - Quality of the prototype
    - UX/UI integration of the LLM
    - Polish
    - Marketing (pitch) of your integration
    - Everyone in the group must speak
  - 33% will be the professors' combined evaluation of your implication, participation, contribution to the learning environment of the class, as well as the quality and thoughtfulness shown in your reflection on your growth & learning in your presentation.

Discussion

Feedback on the day