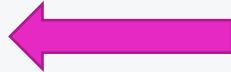


**IMMERSIVE  
LEARNING  
SOLUTIONS**

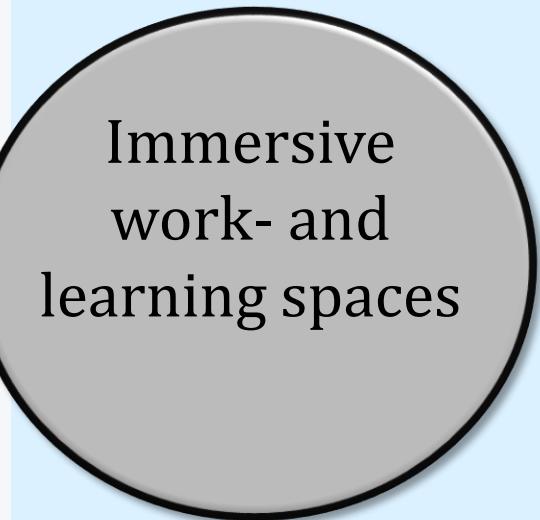
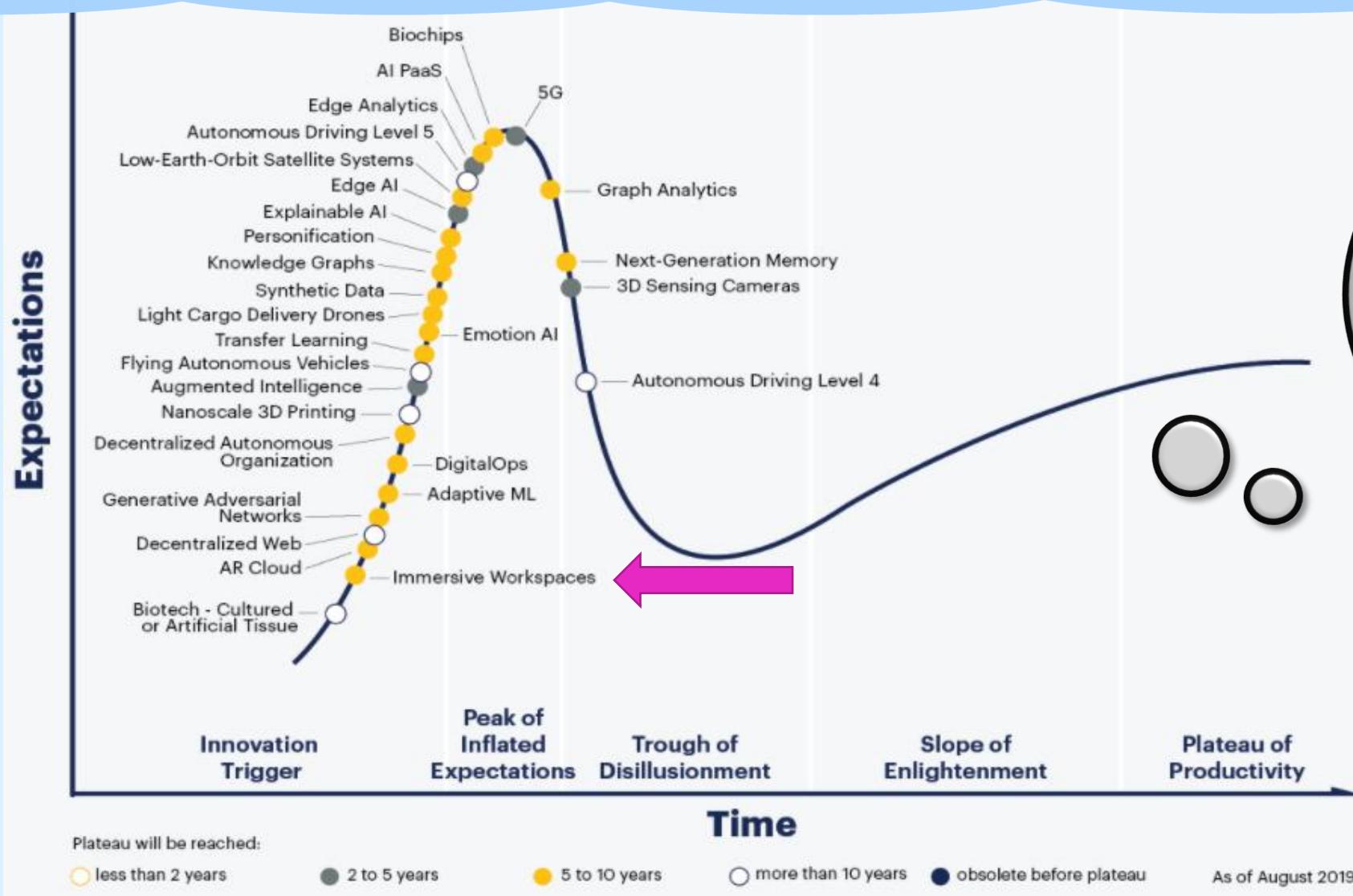
DR. GABRIELLA  
SZILVIA NISHIZAWA

**VR  
AR  
MR/XR**

# Gartner Hype Cycle for Emerging Technologies, 2019



It deals with surveys and opinion polls



## **Immersive learning:**

- being immersed into a virtual world
- exploring the virtual world  
=> learning
- Feeling of physical presence



## Strategies for Implementation of EduTech (AR/VR/XR) Solutions:

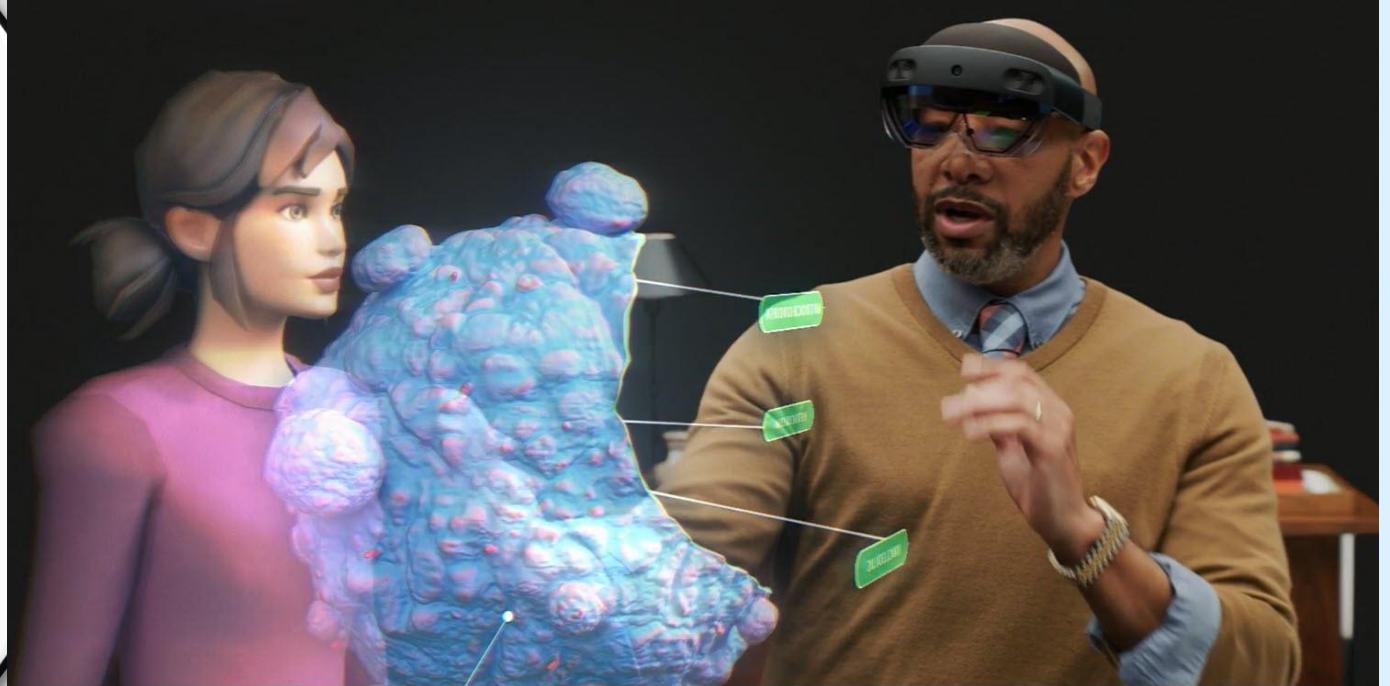
Factors:

- Digital competence of students
- Digital competence of the teachers
- Educational goals, methods
- **Financial background, budget**
  - High-budget solutions
  - Mid-budget solutions
  - Low-budget solutions



## High-budget solutions

- Microsoft Hololens
- Magic Leap
- Interactive walls and tables



## Mixed Reality vs. AR vs. VR

**VR:** parallel universe, a brand new world, which hides the actual reality

**AR:** expands the actual reality with projections

**MR/XR:** AR, which interacts with the actual reality + create a new one



# Mixed Reality

- Combination of the real and the virtual spaces
- Not only immerse but interact
- Human body as the part of the technological experience (Human-Computer Interaction - HCI)

## HCI controls:

- **Eye**-tracking and **head** movement detection
- **Hand** movement and gestures (HTC Vive controller, detects the finger movements)
- **Voice**-based commands

<https://www.spatial.io>



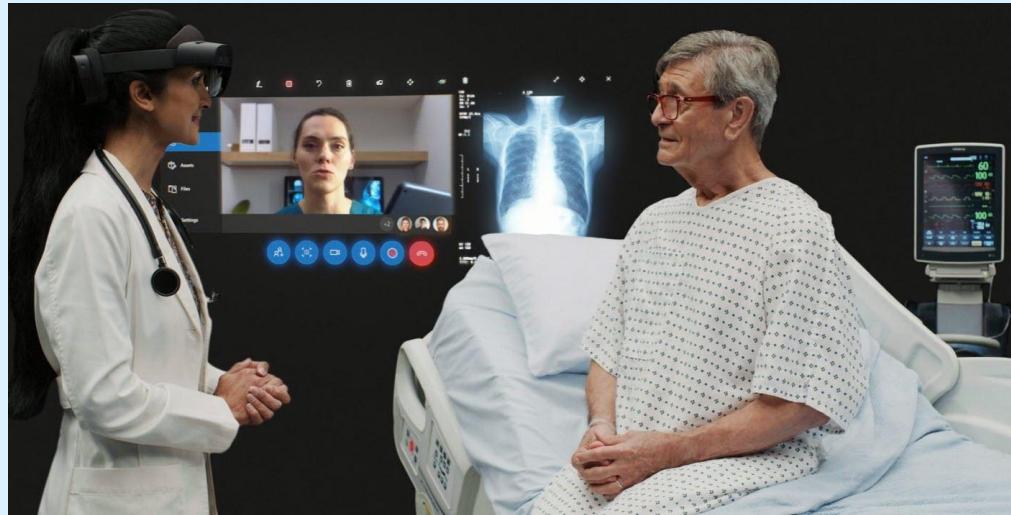
## Mixed Reality (MR/XR)

- Magic Leap



## Mixed Reality (MR/XR)

- Microsoft Hololens



# Interactive walls and tables

Virtual Dissection Table  
(Western University  
of Health Sciences)



## Mid-budget solutions:

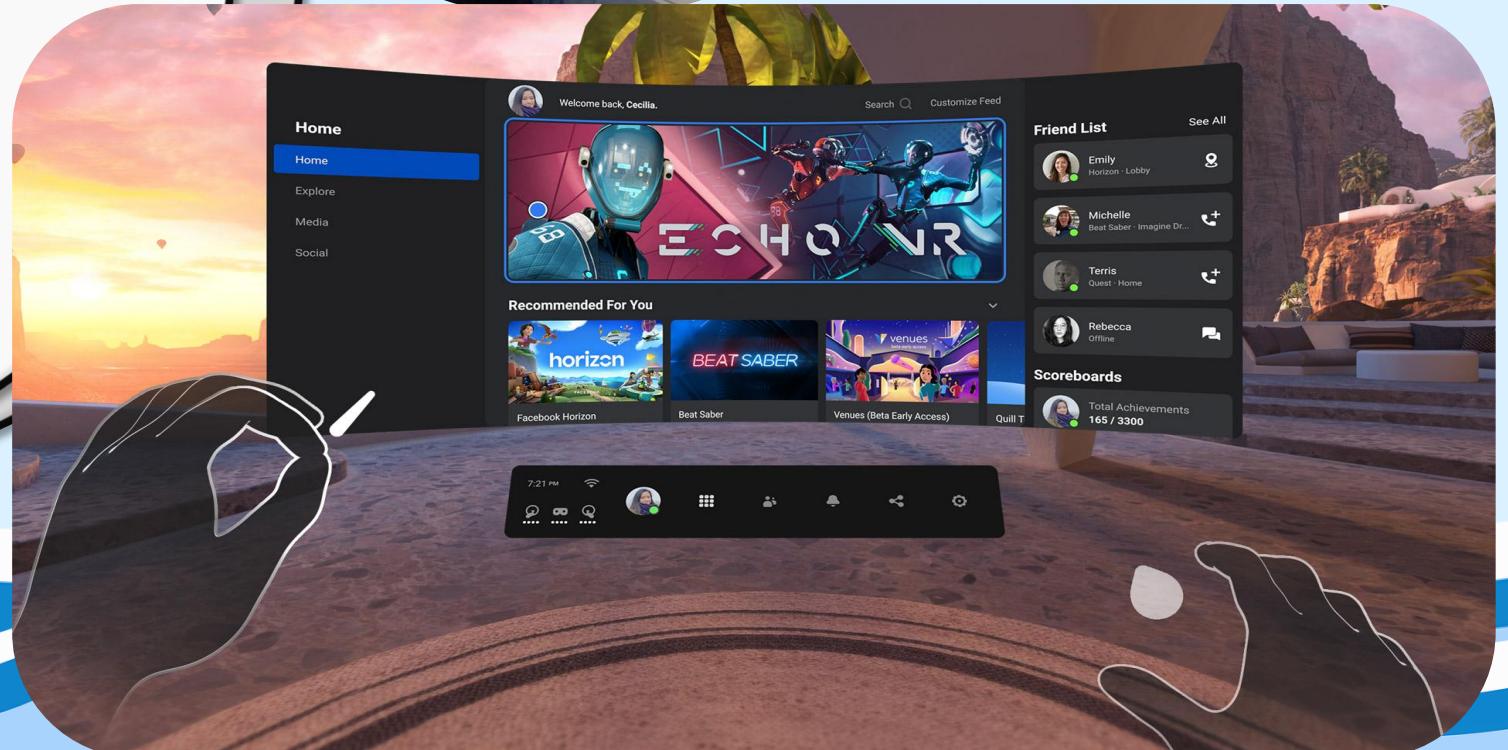
- Oculus Rift (with cable, since 2014)
- Oculus Go (not supported)
- Oculus Quest (wireless)
- HTC Vive



QUEST 2



oculus  
from FACEBOOK



## VR Accessories

- Manual consol (Oculus Quest)
- Gloves – OptiTrack Manus VR
- Cyber shoes



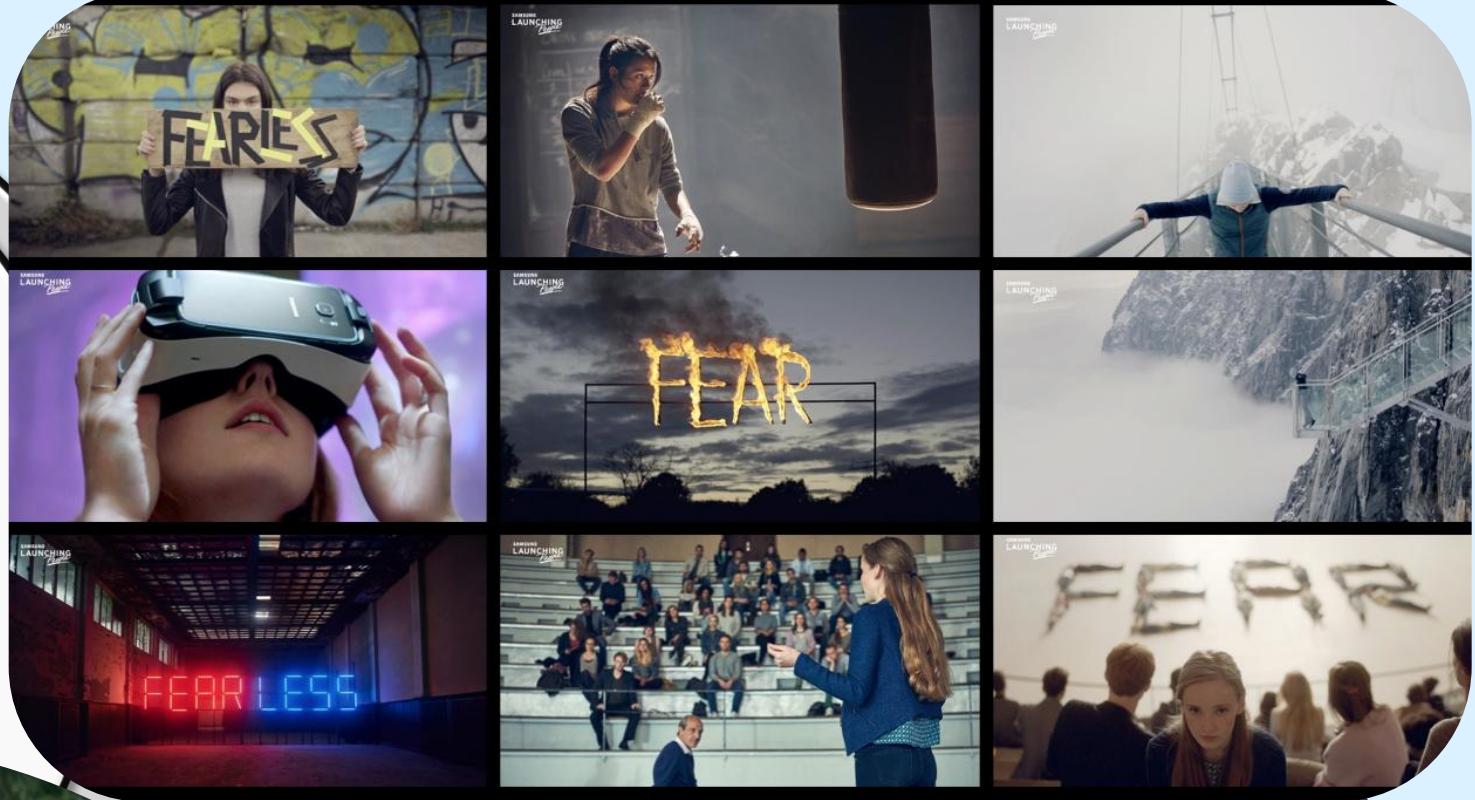
**QUEST 2**



oculus  
from FACEBOOK

# Samsung Be FearlessS

- Simulation of fearful situationspl, e.g. public speech, high places, job interview ;-)
- Oculus Quest



## Low-budget solutions

- Google Cardboard
- VR glasses for mobile phones
- IPad



# Apps

- Google Maps /Lens
- AR Anatomy
- Mozaik
- Metaverse Studio



# Google Lens

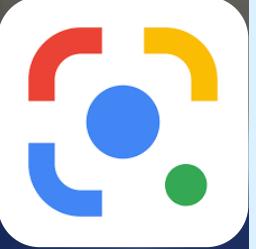
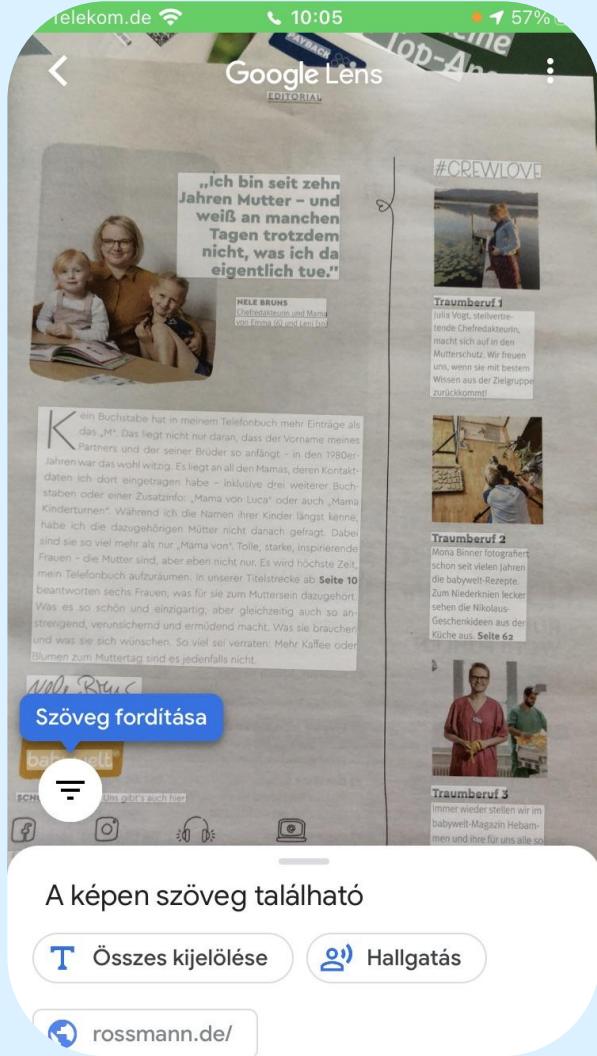
- OCR and text scan
- Automatical language recognition (translation as AR experience)
- Recognition of unknown objects, places



# Functions

- **Translation**
- **Copy (text)**
- **Search**
- **Recognizing places**

iOS, Android



# AR Anatomy

- for Ipads, Mobile phones

<https://www.visiblebody.com/artrial>





# Innovative digital education solutions

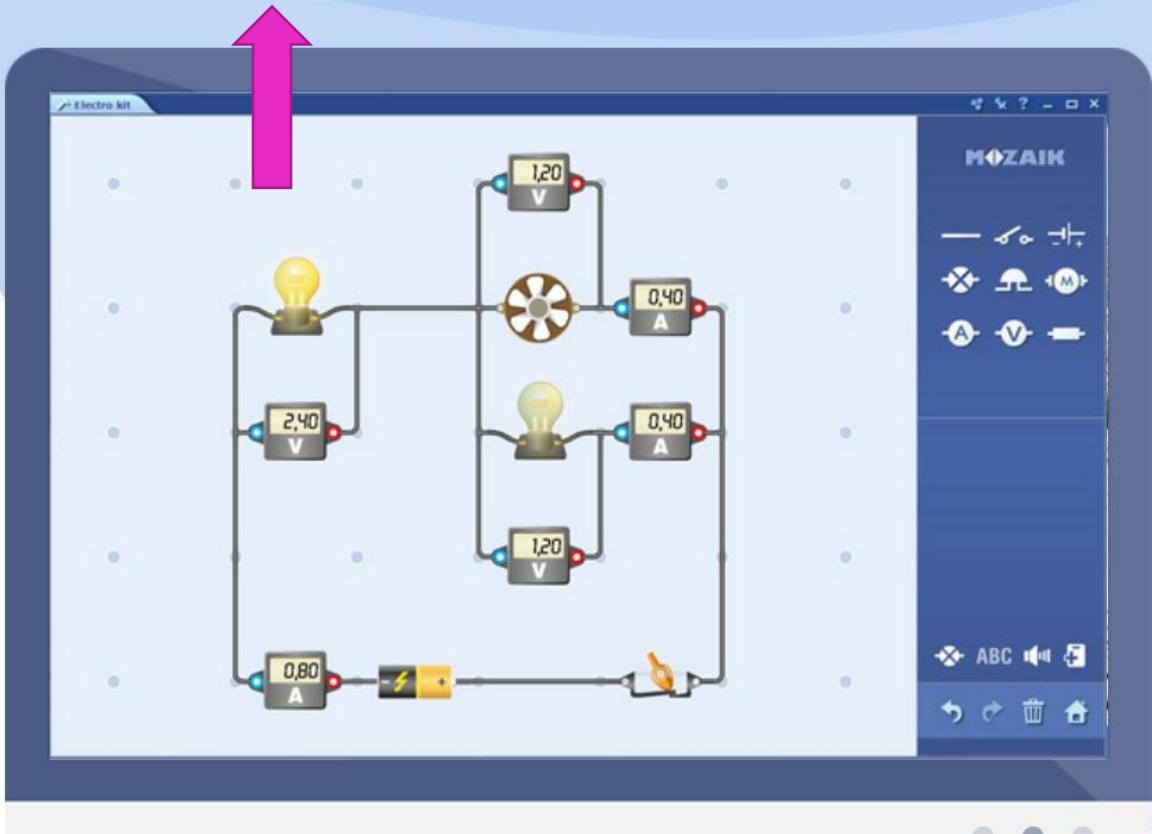
- ✓ For teachers, for the classroom
- ✓ For students, for learning at home
- ✓ For schools, for digital education

[Educational software](#)

[Interactive content](#)

[Pricing](#)

[Further functions](#)



<https://www.mozaweb.com/>

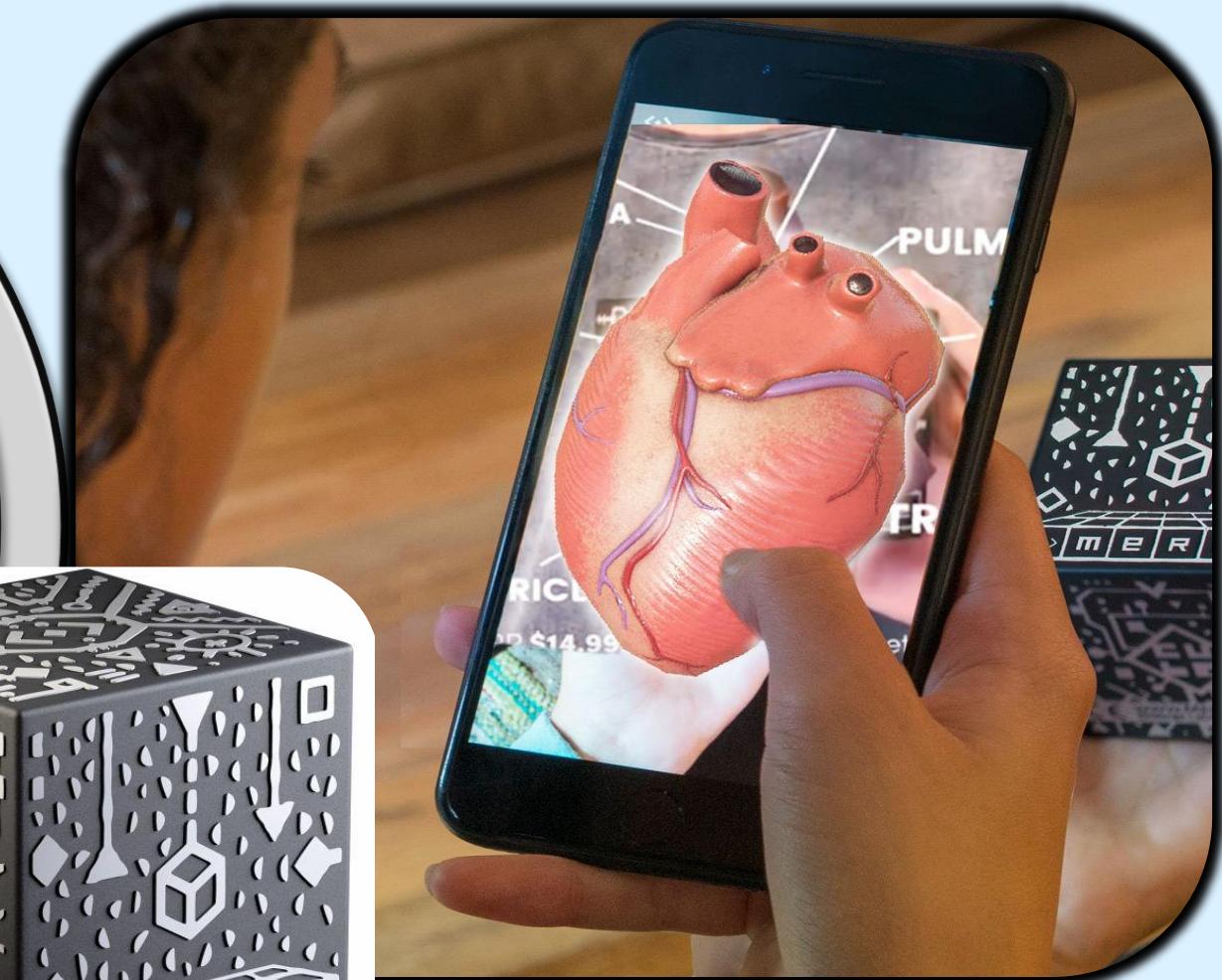
## Mozaik3D App

- Collection of VR experiences in every subjects (appr.1200) for mobile phones and tablets



## Merge cube

- The cube works as a marker
- Merge Explorer app
- 3D tactilic learning



[www.mergeedu.com](http://www.mergeedu.com)

# Metaverse Studio

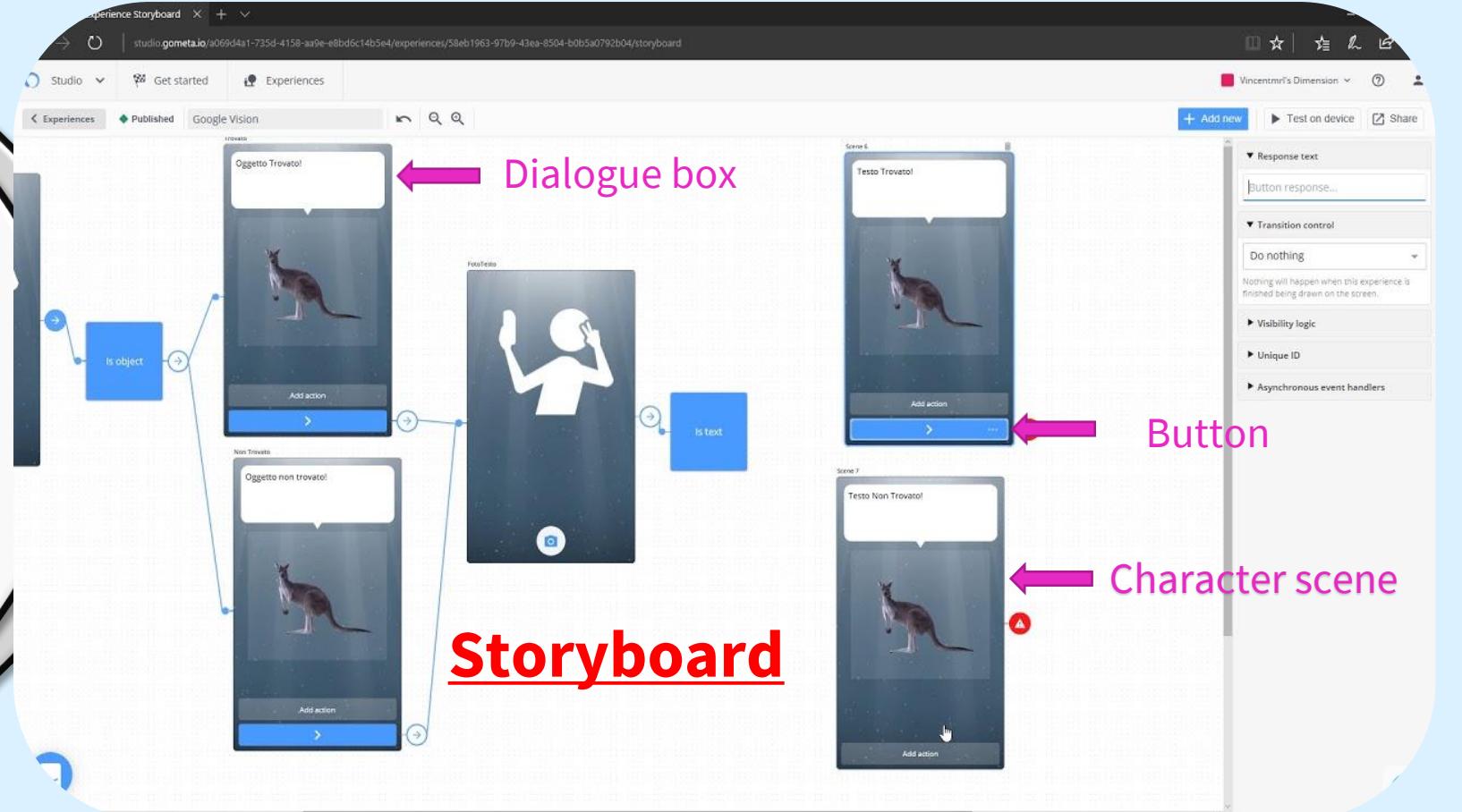
<https://studio.gometa.io/>

The Metaverse Studio homepage features a vibrant red and orange gradient background. At the top left is the Metaverse logo, which consists of a stylized 'M' icon followed by the word 'metaverse'. To the right of the logo are four navigation links: 'BLOG', 'TUTORIALS', 'LEARN', and 'LOGIN'. A green arrow points upwards from the bottom right towards the 'LOGIN' link. The central focus is a large, bold, white text that reads 'Create Amazing Things'. Below this, in a slightly smaller white font, is the text 'The #1 Augmented Reality Platform'. Underneath this text is a prominent blue button with white text that says 'Get Started'. To the right of the 'Get Started' button is the text 'It's Free!'. At the bottom of the page is a screenshot of the Metaverse Studio interface, showing a timeline of AR projects and a sidebar with various tools and settings.

# Metaverse Studio

Interaktive AR-experience:

- quiz
- voting



<https://studio.gometa.io/>

## **Summary HW**

- High-budget solutions (HB)
  - Magic Leap
  - Microsoft Hololens
  - Interactive walls, tables
- Mid-budget solutions (MB)
  - Oculus Rift/Quest
  - HTC Vive
- Low-budget solutions (LB)
  - Mobile phone
  - Tablets

## **Summary SW**

- HB-MB: software included
- LB: optional (e.g. AR Anatomy, Metaverse Studio, Google Lens, Mozaik)