



# Virtual, augmented and mixed reality: Opportunities for destinations

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14.09.18

# Agenda

AR / VR

State of the art

Current-upcoming trends → reflections on potential opportunities

# Virtual Reality (VR) and Augmented Reality (AR)

## Similar underlying technologies but distinct experiences

TODAY: classic examples



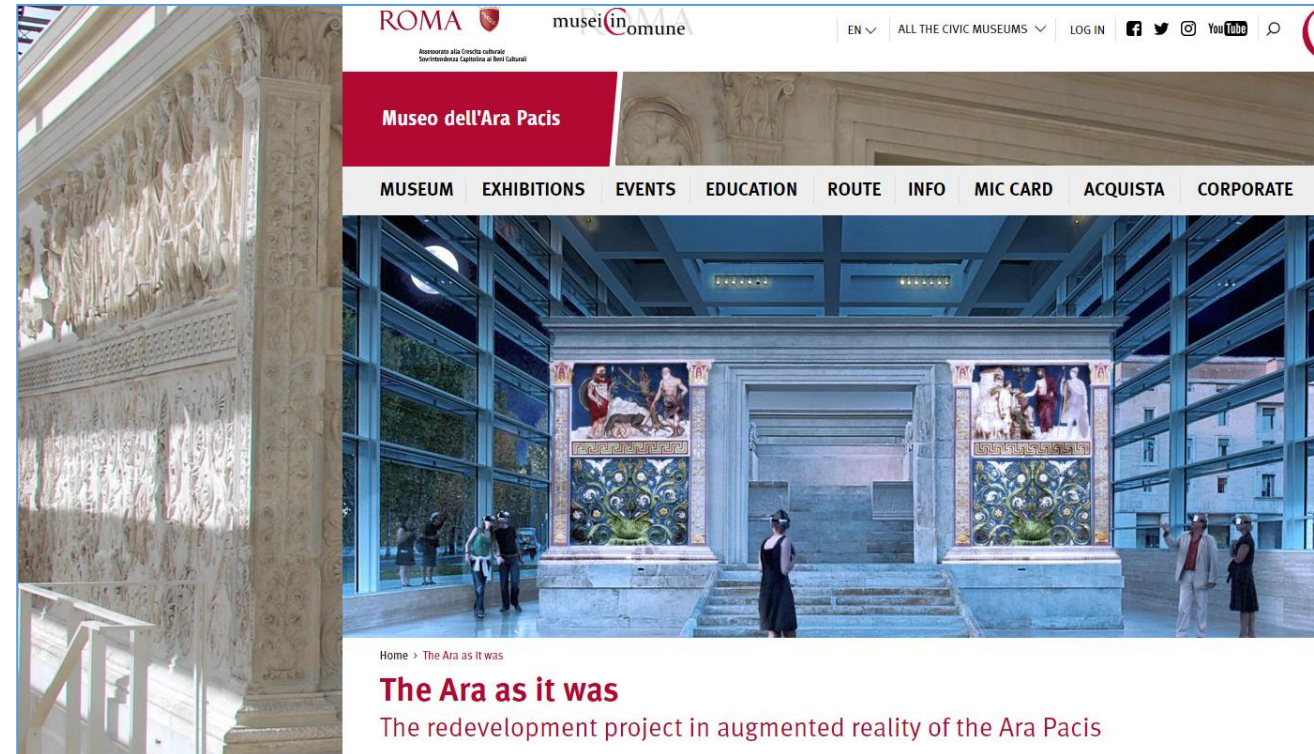
The screenshot shows the website for the Canadian Museum for Human Rights. The navigation bar includes 'Visit', 'Explore', 'Learn', 'Support', 'Act!', and 'Research & Collections'. The main content area features a sidebar with 'Exhibitions' and a list of topics including 'Mandela: Struggle for Freedom', 'Rights of Passage: Canada at 150', 'Seeking Refuge', 'Truth and Reconciliation', 'Canadian Doctors in the Field', 'One Woman's Resistance', 'Seeking Safety', 'Family Day Sundays', 'Métis Beading Workshop', 'Propose an Exhibition', 'Galleries', 'Calendar', 'Floor Plan', and 'Architecture'. The main article is titled 'Virtual Reality Experience' and features a photo of a woman wearing a VR headset. The text describes a virtual reality experience that transports users to Guatemala, part of the 'Empowering Women' exhibition. It mentions scenes like weavers' workshops, a fair-trade textile store, ancient Maya ruins, a kitchen, and a bustling outdoor market. The experience is close-captioned and available in English and French.

Home Explore Exhibitions Empowering Women

### Virtual Reality Experience

Be transported to Guatemala with a virtual reality (VR) experience that's part of the Empowering Women exhibition! You'll be immersed in the vivid sights and sounds of weavers' workshops, a fair-trade textile store, ancient Maya ruins, a kitchen where women come together to prepare meals, a bustling outdoor market, and more!

Weaving a Better Future is the first virtual reality experience created by the Museum. This captivating, 360-degree immersive documentary places you at the centre of every scene, creating a powerful sense of immediacy and involvement. The experience is close-captioned and available in English and French.



The screenshot shows the website for the Museo dell'Ara Pacis. The navigation bar includes 'ROMA', 'musei in comune', and 'ALL THE CIVIC MUSEUMS'. The main content area features a sidebar with 'MUSEUM', 'EXHIBITIONS', 'EVENTS', 'EDUCATION', 'ROUTE', 'INFO', 'MIC CARD', 'ACQUISTA', and 'CORPORATE'. The main article is titled 'The Ara as it was' and features a photo of the Ara Pacis museum interior. The text describes an augmented reality experience that allows users to see the Ara Pacis as it was, including the original architecture and the original artworks. The experience is available in English and Italian.

Home > The Ara as it was

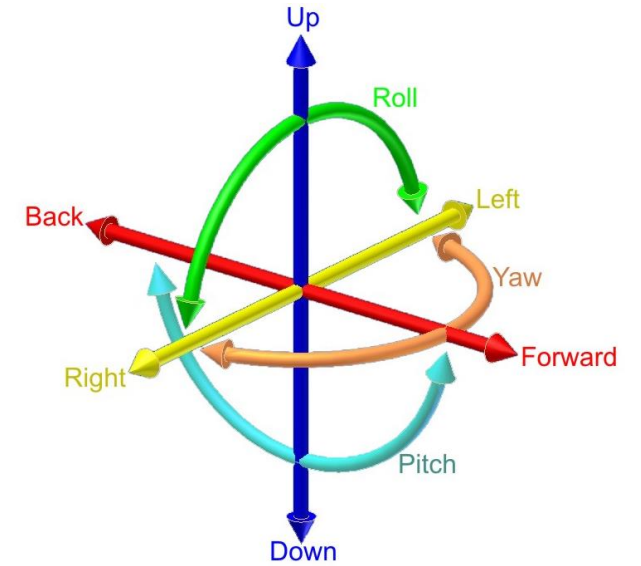
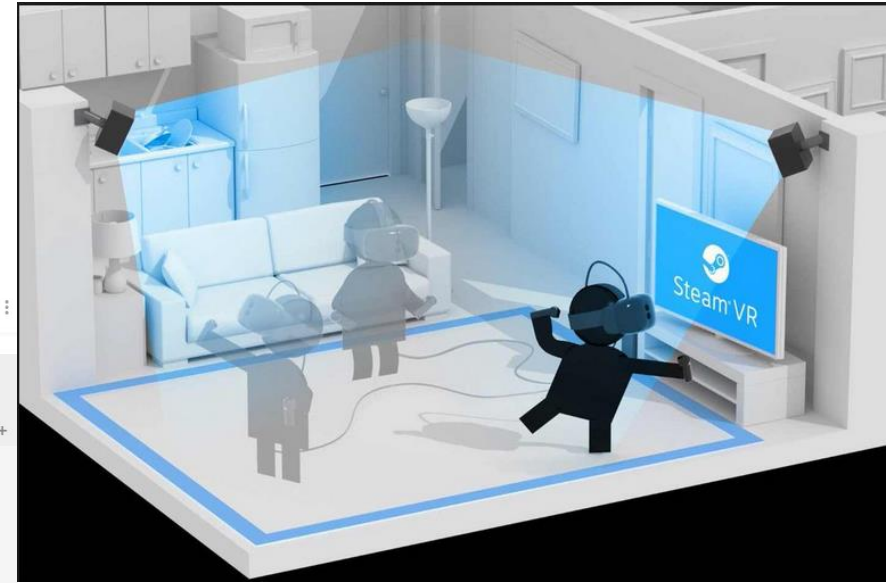
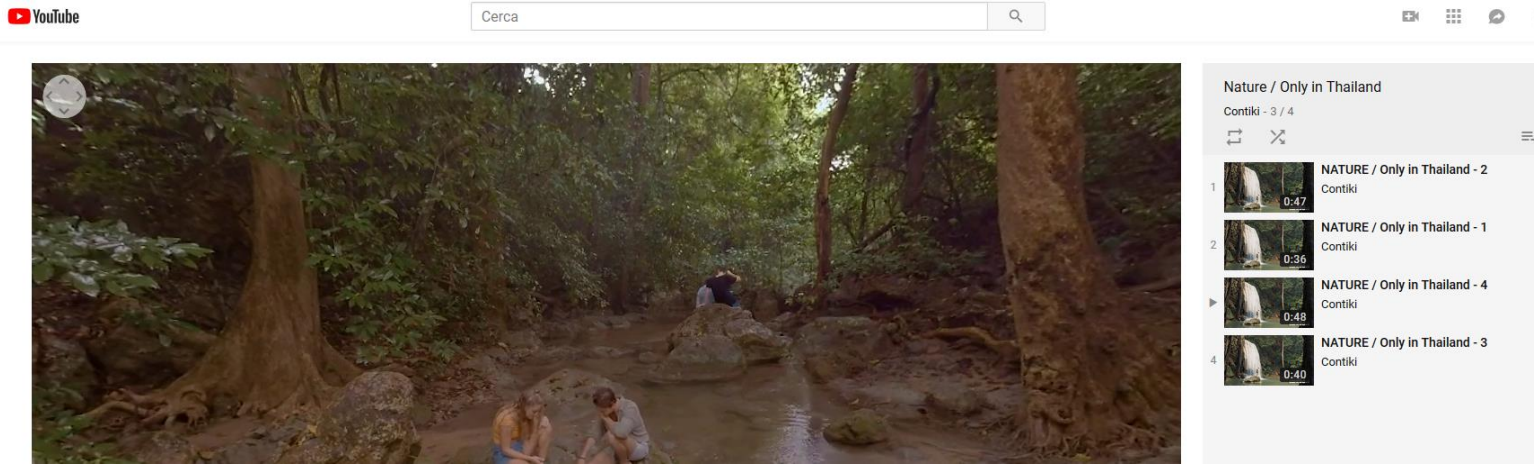
### The Ara as it was

The redevelopment project in augmented reality of the Ara Pacis

# Evolution of user experience in VR

360° video

3 DOF → 6DOF



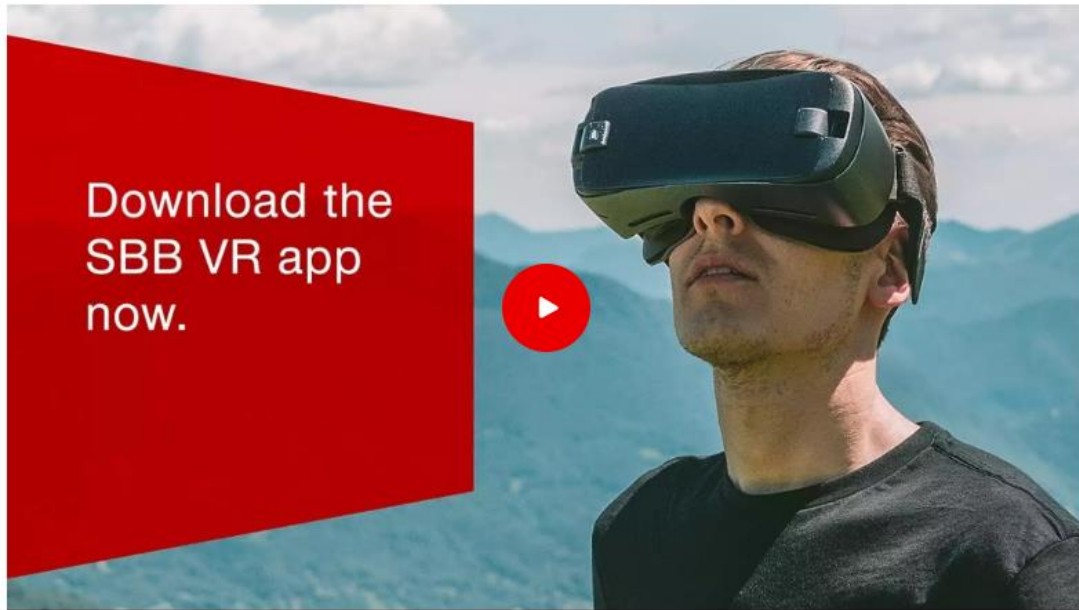
# VR: interaction mass product

## SBB VR.

Explore Switzerland in virtual reality with "SBB VR" and win fantastic prizes.

Would you like to go on a virtual journey? Just select your chosen destination on the interactive map and off you go! Enjoy exciting new adventures in Zurich, Basel, Lugano and Zermatt and for the first time get an insight into what it's like to be a train driver travelling the Grand Train Tour of Switzerland.

All you need is a smartphone with an Android operating system (version 5.0 or later) or an iPhone (iOS version 11 or later). Tip: Try wearing some VR glasses (Cardboard or Oculus) to make your virtual experience absolutely perfect.



## Find stars and win prizes.

Don't miss out: spot the yellow stars on each day of your virtual journey and, with a bit of luck, you could win a promotional code for your next excursion. And the best part? A red star will also be appearing in the app once a week as

### Further information.

[SBB VR FAQs](#) →

[Contact SBB VR](#) →

### More on the topic.

[Gear VR](#) →

### Download App.

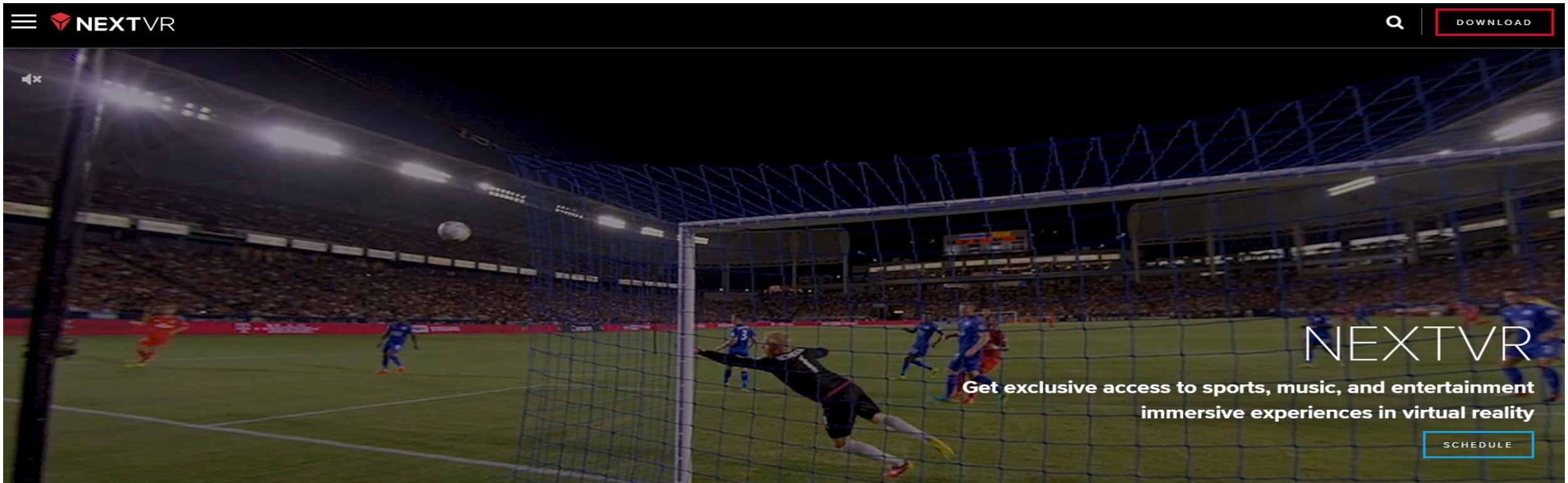
iOS:



Android:



# VR: live experiences → eCommerce → Virtual Shops



The screenshot shows the top portion of the NextVR website. In the top left corner, there is a hamburger menu icon followed by the 'NEXTVR' logo. In the top right corner, there is a search icon and a red-bordered button labeled 'DOWNLOAD'. The main banner features a virtual reality view of a soccer game from behind the goal. A goalkeeper in a black jersey is diving to the right. The text 'NEXTVR' is displayed in large white letters on the right side of the banner. Below it, the text reads 'Get exclusive access to sports, music, and entertainment immersive experiences in virtual reality'. At the bottom right of the banner is a blue-bordered button labeled 'SCHEDULE'.

GET READY TO EXPERIENCE NEXTVR TODAY



1. Buy the headset



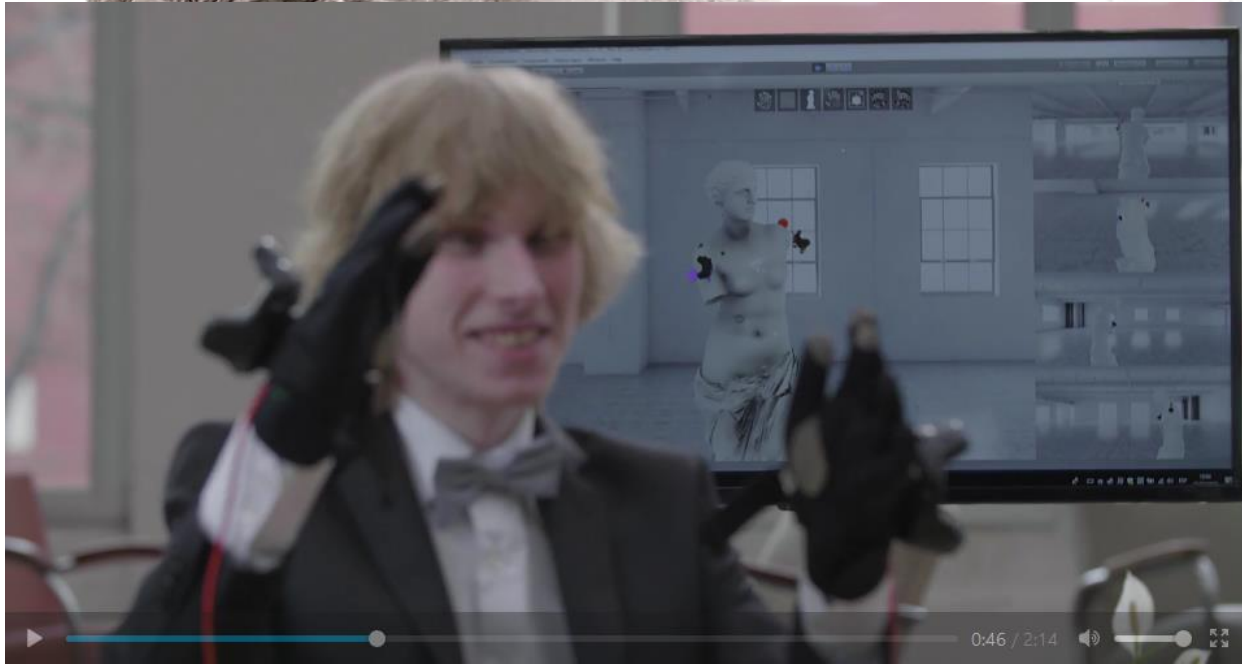
2. Download the app



3. Immerse yourself



# VR: accessibility. Support of visually impaired digital natives



PRESENTING THE UNTHINKABLE

# TOUCHING MASTERPIECES

Some of the world's most precious sculptural masterpieces become visible to the blind and visually impaired people, thanks to new age digital technology.

WATCH THE FILM



# VR: platform (content curation, creation, distribution)

## Introducing Google Earth VR

Explore the world from totally new perspectives. Stroll the streets of Tokyo, soar over Yosemite, or teleport across the globe.

WALK AROUND

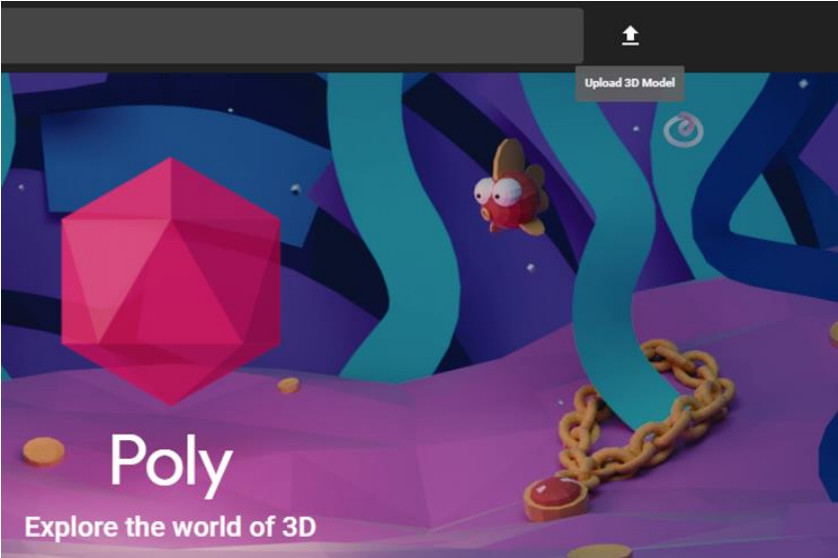
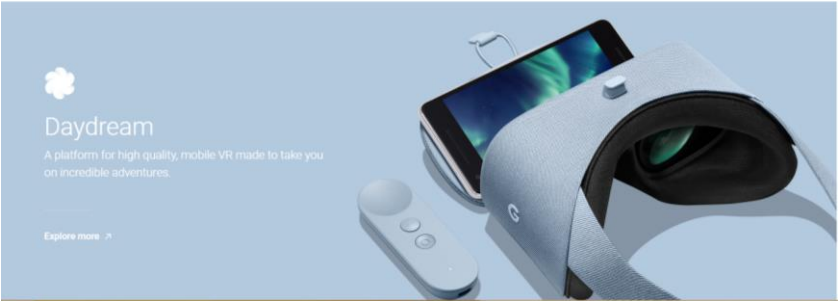
FLY

BROWSE



## Virtual reality for everyone

We're on a mission to bring amazing experiences to the world.





# VR: social

facebook Spaces BETA



# VR: UGCs

vrchat

All Images Videos News Shopping More Settings Tools

About 4.470.000 results (0,22 seconds)

**VRChat**  
<https://vrchat.net/>  
VRChat lets you create, publish, and explore virtual worlds with other people from around the world.

**VRChat (@VRChatNet) · Twitter**  
<https://twitter.com/VRChatNet>  
Users in #VRChat are evolving the world of #dance. Yumi\_yumi dances to Uptown Funk using Full Body Tracking [www.youtube.com/watch?v...](http://www.youtube.com/watch?v...) @BrunoMars #VR  
4 days ago · [Twitter](#)

**VRChat on Steam**  
<https://store.steampowered.com/app/438100/VRChat/>  
★★★★★ Rating: 9/10 - 18,902 reviews  
Join our growing community as you explore, play, and help craft the future of social VR. Create worlds and custom avatars. Welcome to VRChat.



## VRChat

Online game

9/10 · [Steam](#)

98% liked this video game

Google users

VRChat is an upcoming free-to-play massively multiplayer online virtual reality video game created by Graham Gaylor and Jesse Joudrey. It allows players to interact with others as 3D character models. The game was released for Microsoft Windows via Steam's early access program on February 1, 2017. [Wikipedia](#)

**Initial release date:** February 1, 2017

**Developer:** [VRChat Inc.](#)

**Engine:** [Unity](#)

**Mode(s):** Multiplayer

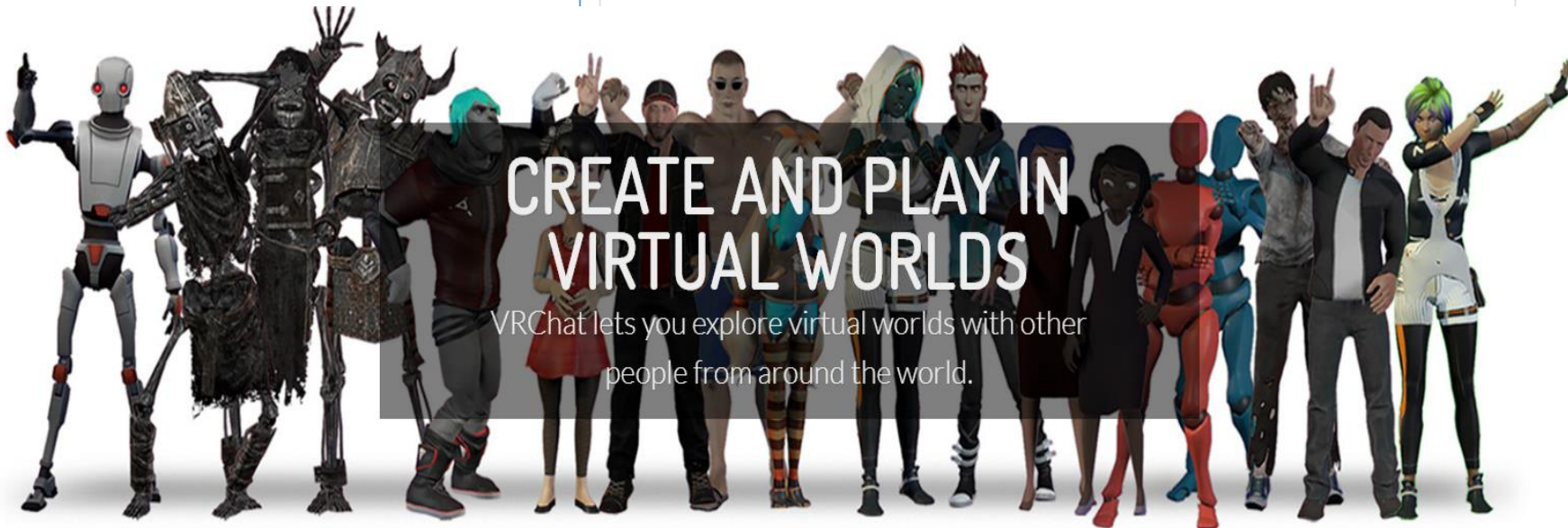
**Genre:** Massively multiplayer online game

**Publisher:** [VRChat Inc.](#)

**Platform:** Microsoft Windows

[Claim this knowledge panel](#)

[Feedback](#)



# Evolution of user experience in Augmented Reality (AR)

Use cases evolve from mobile

## *Smartphones*

Market: worldwide, ubiquitous use

Tech phase: maturity





# AR content creation

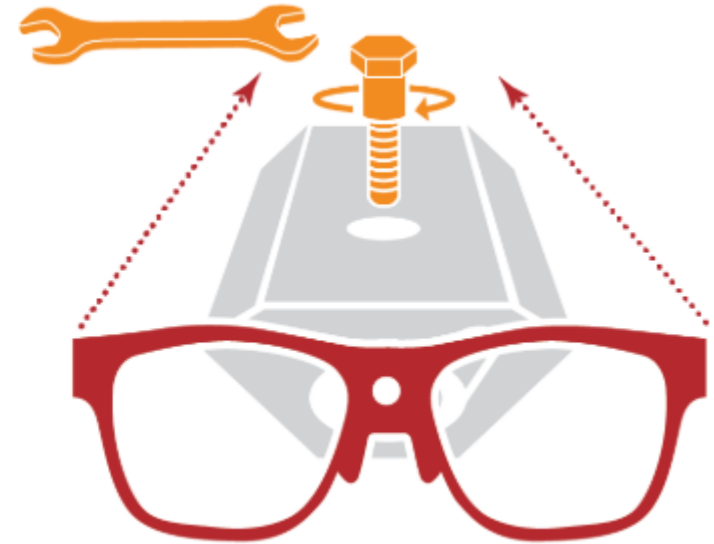
geospatial



2D

markerless

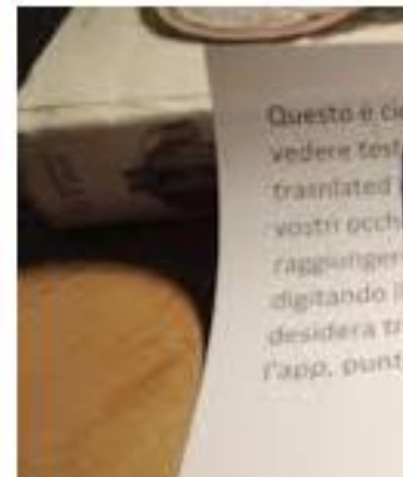
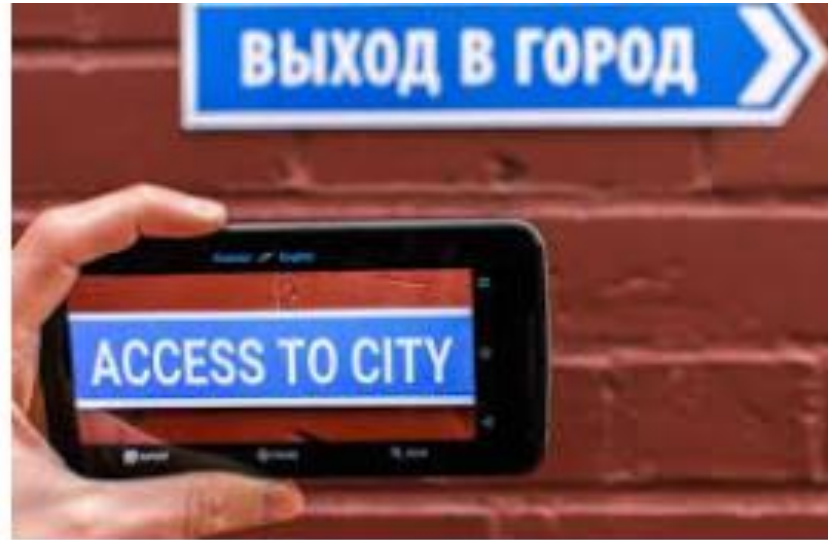
3D



# AR: geobased tour guide



# AR: translate



# AR: markerless





# AR: 2010 – 2018 still rudimental

Like 263 people like this. Be the first of your friends.

# DIY DAY

# MoMA

Oct 9th 2010  
**AUGMENTED  
REALITY  
art invasion!**

INVITATION DETAILS EXHIBITION PHOTOS PRESS

## October 9th 2010

Sander Veenhof and Mark Skwarek cordially invite you to the "WeARinMoMA" exhibition in the MoMA NY, featuring **augmented reality art** in its proper context: a contemporary art museum.

At the same time, the 'art invasion' annex exhibition showcases the radical new possibilities and implications Augmented Reality is bringing to the cultural and creative field.

PS The MoMA is not involved yet



Augmented Reality (AR) is the phenomenon adding virtual elements into our physical reality. These addition are viewable by pointing your contemporary smartphone to the world around you. The phone knows where you are (because of GPS) and with this data it connects to the internet to get the relevant images, visuals, 3D shapes and it puts them into your view.

'AR' technology allows anyone to (re-)shape anything, anywhere!

An example: the MoMA building NY will host a 'virtual' augmented reality show on the 9th of October 2010 But they don't know about it yet. The infiltration is part of the Conflux Psychogeography festival.



# AR: interaction, eCommerce, co-branding



Blippar & Covent Garden Create World's First AR Shopping Destination

2,571 views

6 0 SHARE



Blippar

Published on 18 Jan 2017

SUBSCRIBE 4.7K

# AR: interaction, eCommerce, co-branding



## #ticinomoments AR App 4+

Augmented Reality

Ticino Turismo

Free

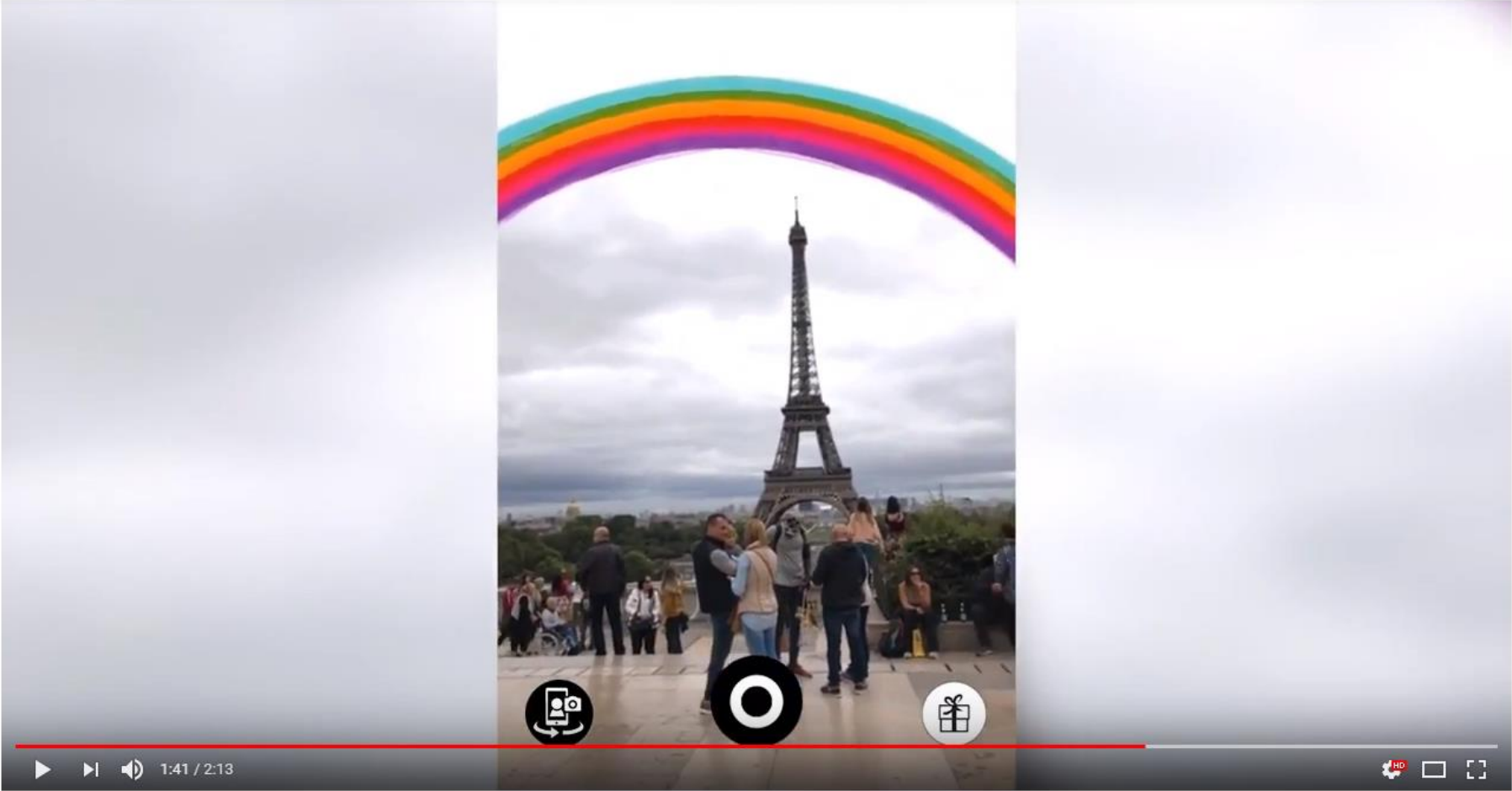
### Screenshots

[iPhone](#)

[iPad](#)



# AR: Quality & content a crucial issue



Augmented Reality for Retail | Kate Spade New York: Paris Store Launch

# AR: current trends

## 1) Simultaneous Localization and Mapping

### Wayfinding AR Tool

AR development to demonstrate use case for digital wayfinding. The AR App provided wayfinding tracking and directions throughout Terminal D at DFW Airport. Link to the case study - [https://www.groovejones.com/american\\_airlines\\_arkit](https://www.groovejones.com/american_airlines_arkit)





Terracotta Warriors meet AR

## Augmented Reality Series by The Washington Post on iconic billion-dollar buildings



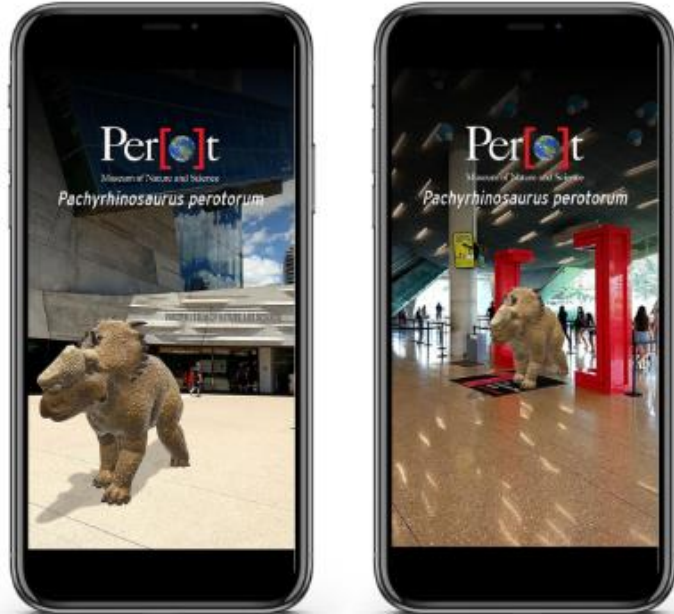
After tapping the story, accessible via the Post's classic app, readers can point their smartphone's camera at the ceiling of any room they are in. With clear calls to action, the camera takes over to activate audio and 3D content. Through simple navigation, they will be guided through the creation of the concert hall's famous ceiling, which is composed of 10,000 unique panels each algorithmically generated to create state-of-the-art acoustics. The experience is exclusively available for iOS devices.

The Post is planning for additional augmented reality stories later this year. The billion-dollar building series is sponsored by Audi

## 2) Social AR Filters and Lenses

### Pachyrhinosaurus Perotorum AR Object Filter

The Perot Museum of Nature and Science celebrates dinosaurs with a social AR photo filter. The filter has been released on both Snapchat and Facebook. Link to the case study - [https://www.groovejones.com/perot\\_museum\\_snapchat\\_ar\\_lens/](https://www.groovejones.com/perot_museum_snapchat_ar_lens/)



### American Horror Story – Eccentricities Gallery Experience @ Comic-con San Diego

Groove Jones helped FX bring a dark and mysterious exhibition to life with AR. At the end of the experience, every visitor had the chance to create an AR-enabled filter photo that they could then share on their social channels. Link to the case study - [https://www.groovejones.com/fx\\_ahs\\_comic-con/](https://www.groovejones.com/fx_ahs_comic-con/)





### 3) Content creation: tools

Today/upcoming future:

Entire scenes can be accessed using a mobile AR device.  
More realistic and interactive.

The screenshot shows the LAYAR website interface. At the top, the LAYAR logo is followed by "PART OF THE BLIPPAR GROUP". Navigation links include FEATURES, PRICING, SOLUTIONS, and SUPPORT. Below the navigation is a Google search bar. The main content area features a section titled "The Keyword" with sub-links for "Latest Stories", "Product Updates", and "Company News". A bullet point highlights "Faster AR development" using Sceneform. Below this, the ARCore logo is displayed. To the right, a code block shows Java code for creating an AR anchor. Further right, a smartphone displays an AR application interface with a search bar and a 3D penguin model on a wooden floor, with instructions to aim at a flat surface.

```
// Makes an Object appear in scene.  
AnchorNode anchorNode = new  
AnchorNode(hitResult.createAnchor());  
anchorNode.setParent(scene);  
  
Node node = new Node();  
node.setRenderable(renderable);  
node.setParent(anchorNode);
```

Aim at the floor, or another flat surface, and move your phone in a circle.

# AR challenge: Data visualization



Pic source: [https://cdn-images-1.medium.com/max/2000/1\\*7YGxtol3RWn3hXNWYd9neA.jpeg](https://cdn-images-1.medium.com/max/2000/1*7YGxtol3RWn3hXNWYd9neA.jpeg)

# AR challenge: Artificial intelligence & computer vision

## Objects, (public figure) faces, cars, logos recognition

blippar

Augmented Reality ▾

Computer Vision ▾

How We Can Help ▾

Case Studies

Blog

Find out more

## Give your products and apps the power of sight

Our Object & Logo Recognition API recognizes 4-5 million everyday objects across 16 verticals. The accuracy of our technology is the best in the world for many categories, including logos, flowers and landmarks. Below is a sample of the categories our tech can identify...



Food



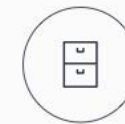
Flowers & plants



Animals



Landmarks &  
buildings



Household &  
workplace items



Logos

AR challenge: Data tracking and analytics

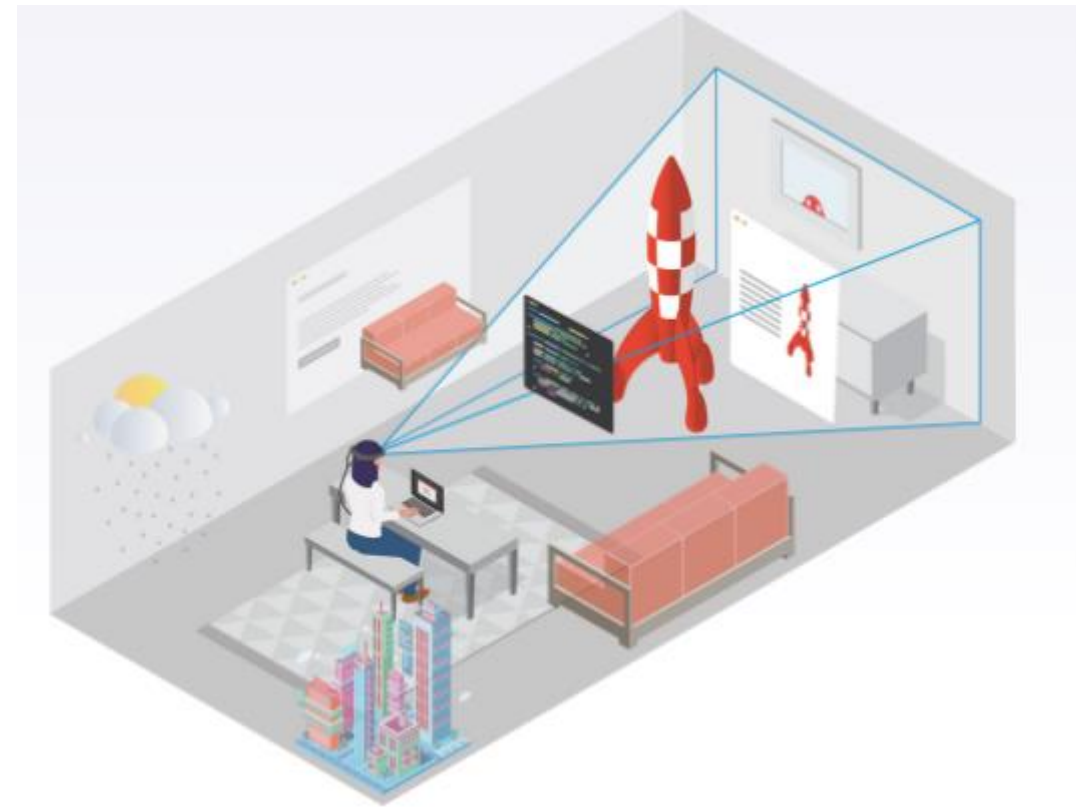
Agile marketing based on realtime data is one of the main advantages of true experiential marketing

Security/privacy



# AR challenge: interactive spatial experience

3D objects pulled out of websites into the physical world





Thank you!  
Questions?

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[@elena\\_](#)



**DIVISIONE EVENTI  
E CONGRESSI**  
Città di Lugano