

Augmented Reality, Virtual Reality and the Metaverse

1. Differences
2. Historical View
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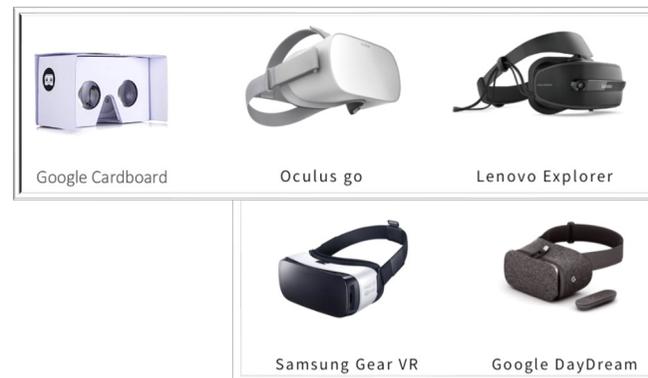
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1. Differences. - Virtual Reality

An artificial, computer-generated simulation or re-creation of an environment or situation

that **fully immerses** you into a 360° digital world, creating an alternative reality experience that **seems “real”** to the audience.

VR Haptic Gear Able to touch, feel, grasp



1. Differences – Augmented Reality

The blending of interactive 3D imagery into your physical surrounding. The user **sees the real world**

but with the addition of computer-generated **images** which are **overlaid** on various objects within the real world.

Either via screen or vision.

Typical AR Head Gear

Microsoft Hololens, Google Glass Enterprise, Vuzix Blade



Epson Moverio, Raptor by EverySight, Focals by North



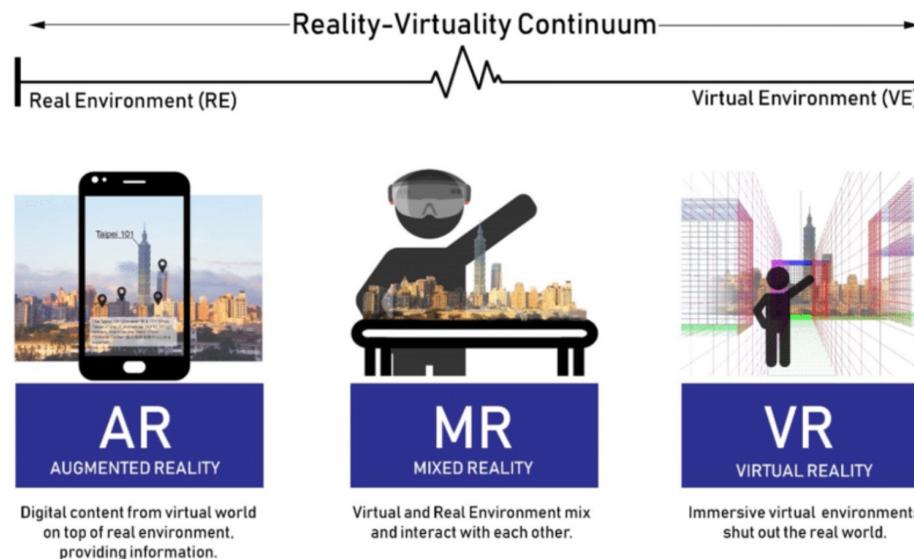
Magic Leap

Metaverse draws from VR and AR

All digital – you use a computer and appear as a **digital avatar**

What you see is a digital virtual world with **3D virtual spaces, shared** with other avatars

Users own assets and experiences e.g. purchase land, build, sell...
Attend launch events, training, meetings, art galleries, shops...



2 Historical View – AR Timeline

- 1968 Augmented Reality Debuted
Ivan Sutherland head mounted display
‘Sword of Damocles’
- 1990 AR term coined
Boeing researcher Tom Caudell
- 1999 NASA and Naval use of AR
- 2003 AR in Cars training & technical assistance
- 2014 Consumer: Google Glass, Magic Leap
- 2016-2019 Microsoft HoloLens,
Pokémon Go
HoloLens2

2 Historical View – VR Timeline

- 1838 Wheatstone stereoscope
Mirrors binocular depth perception
- 1939 View-Master (debut at World's Fair) Rotating cardboard discs
- 1962 Sensorama – Morton Heilig
Motorcycle Ride New York
sight, sounds, and smells
- 1991 Virtuality: World first mass produced
multi player VR system
- 2014 Google Cardboard
- 2015- Oculus Rift
2017 Sony Playstation VR
Microsoft Xbox with VR

2 Historical View –The Metaverse Timeline

- 1992 **coined** by Neal Stephenson **sci fi novel** 'Snow Crash' – escape from dreary totalitarian reality
- Designed by Technology based on AR and VR developments dating back to 1838
- Not unlike Second Life- released in 2003

Virtual Reality:

184 Years

1838

Augmented Reality:

54 years

1968

3 Current VR Applications

- Exploring tourist locations
- **Hot air balloon ride**
- Rock Climbing, Sailing
- **Pilots re experiencing the joy of flight**
- Being immersed playing a tennis match
- **Visiting where used to live**



Games Theme Park
Educational
Aged Care



Medical
Quality of Life

3 Current AR Applications

Travel guides and maps with digital overlays

Smithsonian Skin & Bones

Marketing

Medical

Oil and Gas Rigs

Multiple Industries

Social Impact



Archaeology
Architecture
Tourism



Task Support
Emergency Mgt
Education



Navigation
Military
Medical

4 The Impact of COVID

- **Remote** work culture
 - schools, medical, business, government etc. greater need for connecting tools
 - This **Accelerated VR and AR** Markets and interest in the Metaverse
- Can expect **increase** in **gesture tracking devices, more VR/AR/MR and Metaverse meeting places**
- Healthcare focus
 - **increased** applications of both VR and AR

5 Future View

Apple Glass 2023-2025

- Unlimited
 - **AR/Mixed** - current strong **leader**
 - VR – **Gaming**
 - Disruption - Pokémon Go was just a start
 - Smaller **less intrusive** 'headgear'

NOT going to go away!