

A white smartphone is shown from a low angle, lying on a dark, reflective surface. The screen displays a photograph of a large, multi-towered castle with blue roofs and orange walls, set against a backdrop of trees. A semi-transparent dark grey rectangular box is overlaid on the screen, containing the title 'Augmented Reality' in white, bold, sans-serif font. Below the title, the author's name 'Juan Turcios' is written in a smaller, white, sans-serif font. The background behind the phone is blurred, showing some indistinct lights and shapes.

Augmented Reality

Juan Turcios

What is augmented reality?

An interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information



What augmented reality really is is the real world with added technological elements. The user's perspective and experience of the real world is enhanced by computers.

Virtual reality and augmented reality are not the same thing. Virtual reality means computer-generated environments for you to interact with, and be immersed in. Augmented reality (also known as AR), *adds to* the reality you would ordinarily see rather than replacing it.

Brief History

- invented in 1968
- “Augmented Reality” coined in 1990 by Tim Caudell
- 80’s & 90’s: started being used in various industries
 - pilot training
 - NFL Broadcasting
- Today: spread to consumers
 - Google Glass
 - Microsoft Hololens
 - Snapchat!



In 1968 Ivan Sutherland and Bob Sproull invented the The Sword of Damocles. It was a head-mounted display that displayed computer graphics.

An artificial reality laboratory was created in the 70's. It was called videoplace and the scientist who made it envisioned human interaction with digital elements.

A primitive version of Google Glass was invented in the 1980's. It was called Eyetap and depended on the user's head movements to project a display. Here's a video displaying of what that looked like.

When the AR was coined by Caudell, he was working for Boeing and had been using the technology to test new pilot navigation.

One thing that almost immediately made augmented reality popular was the creation of Pokemon Go. Users would go around their neighborhood in search of new Pokemon through the lens of their phone cameras. This game was very popular during the summer of 2016. This was one of the first worldwide illustrations of how AR could be implemented into regular consumer lives.

Examples of AR that we currently use in our daily lives would be Snapchat filters, some QR code scanners, and video games.

2 Main Types of Augmented Reality

Marker-Based AR

Markerless AR



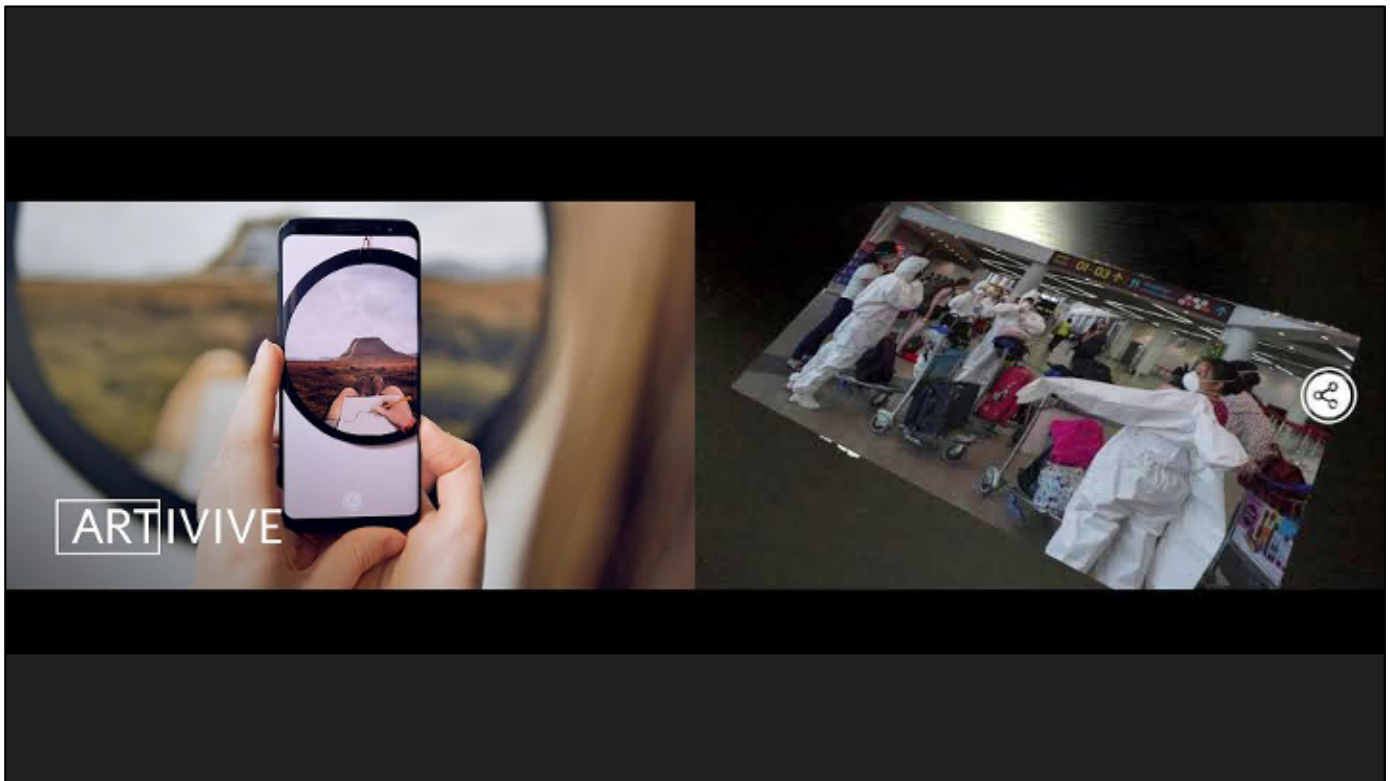
- Marker-based AR
 - Also known as Image Recognition or Recognition based AR
 - provides us more information about the object after it focuses on the recognition of objects
 - Needs the camera to focus on an object (a marker) to display more information about it
- Markerless AR
 - Does not need the camera to recognize an object
 - Instead, it adds digital elements to the real world in which the camera is pointing at
 - Companies like IKEA use it to place virtual furniture in a real-world living room
 - As the video mentions, Apple's AR Kit has made it easy for companies to implement AR into their businesses.



I feel like it's easy to associate AR with a phone camera but all it means is digital infusion with the real world. One example of this is the NFL indicators on TV. In this video, we see how Sportvision had developed the yellow line for NFL Football viewers. After this was created, the company had spread its technology to other sports and was able to create clearer digital indicators for the viewer of each sport.



In this 2012 video, Matt Mills uses the iPhone's tech to show consumers how easily-accessible AR has become. He demos Aurasma, an AR tool, and shows how the phone is able to process images just like humans are and how the phones are able to track objects and keep the digital content in its place, despite its movement relative to the real-world object.



Here's a demo of an app called Artivive. I recently had to do a project involving AR in one of my TRM classes and I decided to work on Artivive, which is similar to Aurasma. The phone points at an object and video can be shown on the phone's display. I made my project about the COVID pandemic. Here's a little demo of how it works, and my project.

Artivive has a software called bridge which only requires a few things from the artist. First is the target image, the image that is to be scanned and recognized by the phone. And second is the Video/Audio file that should be displayed once the target image is recognized. Therefore, artivive would be considered a marker-based app.



Here's an example of how AR is being used in the classroom to expand children's knowledge. Kids are suddenly more interested about learning when they see objects on screen that they wouldn't be able to see otherwise, such as microscopic DNA or locations far outside the classroom. Kids are more intrigued and want to learn more about the way volcanoes erupt or the human anatomy. AR allows children to experience things out of their reach.



Daigo Daikoku is an art director that graduated from Kanazawa Bijutsu Kogei Daigaku (the Kanazawa Art and Industrial Design University) in 2003. When asked about his career, he says, “I think the goal of design is to produce high-quality, and moving communications that offer new perspectives to people. I believe that design has the power of moving people’s heart beyond ethnic and cultural boundaries.” His “Augmented Nature Room” definitely demonstrates his goal. He uses petals that makes things happen in the room. A plant may grow or a miniature person may avoid falling into a pot of water.