

Has Hollywood created unrealistic expectations of augmented reality?

“Sometimes, in order to see the light, you have to risk the dark.” So Dr Iris Hineman told Chief John Anderton, Tom Cruise’s character in *Minority Report* - the dystopian sci-fi film set in 2054 where thought crime and augmented reality (AR) based gesture recognition exists.

Minority Report was one of the early Hollywood proponents of the role AR and virtual reality (VR) would play in the dystopias of the future – more recent examples include the use of AR maps in *Avatar*, or the VR headsets in *Ready Player One* which transport wearers from post-apocalyptic Oklahoma City to the ‘Oasis.’

But – as Dr Hineman put it – instead of lighting the AR beacon, has Hollywood instead cast a shadow over the industry? Have these blockbusters created unrealistic expectations for what AR might look like a decade from now? What does the future actually hold for AR?

A blended future

Ultimately, I believe AR and VR will blend together. Take the glasses in *Ready Player One*. They’re transparent, so can be used to view the real world, but then they can be occluded and project a completely virtual world inside them – or in other words, VR.

VR headsets already exist and are available to buy, like the famous Oculus Quest 2, which was just released and is likely to be sold out this winter holiday. AR glasses scan the real world and use a 'mirrorworld' onto which they overlay content (using the AR cloud) such as apps with bespoke directions, information, reviews of restaurants. Some like NReal or Magic Leap have already been released, and more mainstream ones from Apple, Facebook and Snapchat are rumoured to not be too far behind.

There are whispers that Facebook is working on either an AR headset or a mixed reality (MR) headset which can offer both AR and VR functions. Apple – despite some delays – is also rumoured to be coming out with AR and MR glasses in the next couple of years – possibly as soon as 2021/2022.

So, in all likelihood, Ready Player One style transparent AR or MR glasses aren't too far away.

Minimisation of physical hard drive space

One of the key factors which will facilitate the merging of AR and VR is the reduced need for physical space on which to store tech data and content. In terms of device, since the turn of the century, technology has shrunk massively. We've gone from big computers to laptops which were then followed by smartphones which can take and retrieve information from anywhere.

I think in the future, the smartphone will again downsize to the extent that it becomes no longer a smartphone. Instead, what you'll have is a hard drive which will not only fit in your pocket, but connect to AR-powered glasses which can then serve you custom, contextual information about your surroundings – wherever you are.

This is also partly dependent on the implementation of 5G networks. At the moment, bandwidth options wouldn't be able to download all the data from the cloud needed for truly realistic AR. There's also increasing international desire to make urban living more environmentally efficient and move towards 'smart cities' powered by the Internet of Things (IoT). Alongside 5G, which will solve the current bandwidth issue, moving towards smart cities will facilitate the development of AR experiences which show users information precisely curated for their environment.

This information will also use previously collected data on things like the user's budget if out shopping, their taste in food when looking to find restaurants, or the activities they usually get up to. The technology will know exactly what

you're doing – so the information it serves to the user will all be personalised specifically for them. As another example, it could project LinkedIn, Facebook or other information on top of the person you're meeting with.

I suppose there is something a little dystopian about that – maybe Stephen Spielberg was on the right lines with Minority Report!

In these glasses, users will be able to see everything from adverts visible only to them, to bus timetables or a supermarket guide to items needed for a recipe. There's almost countless ways AR technology could be implemented to improve people's lives.

Looking further down the line

As the technology evolves, these devices will change too. Manufacturers are constantly looking for ways they can downsize products to make them more efficient and aesthetically pleasing. As the size of the hard drive chip needed shrinks, I can foresee the industry turning its attention from AR glasses to contact lenses. There are many tech companies out there – including Mojo Visio and Samsung – already investing in patents in contact lenses.

Beyond that, as chips reduce to be thinner than the width of a human hair, there's potential for them to be implanted directly into a person's brain! Elon Musk has talked extensively about investing in this area – he wants to be able to implant devices firstly in paralysed humans to allow them to control phones or computers.

From there, it would be a matter of time before the technology was rolled out more widely. Facebook has also invested in brain-connected interfaces.

Apple as a precursor

As always, the timeframe with which these products come to market depends largely on Apple. When the iPhone came out, the app store and the breadth of content developers were able to put out revolutionised the phone market.

That set a precedent for any technology being released from Apple becoming truly mainstream. With AR glasses, we're counting on Apple to produce an amazing product and change the game.

Apple is also pretty good at making products with a certain aesthetic appeal. That's also going to be important when it comes to bringing this technology to market – no one will want to walk around with these glasses on in the street if they're uncomfortable and look foolish!

Final thoughts

If you go into most restaurants today, you'll scan a QR code rather than reading from a physical menu. Up pops a virtual menu on your phone – it's not a stretch to suggest that these menus could, in the future, be viewed instead through AR glasses. Then you can imagine how it might be useful for the user to view 3D models of items on the menu before ordering.

There's so many use cases where AR can change what was previously thought to be possible. Hollywood was right that AR is coming – in fact it's already here. Thankfully, it's not accompanied by 'thought crime' and the other dystopian labels attached to it by the film industry. At least, not yet.

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