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CS 491 – VR Design

Week 8: Holoportation

This week we discussed about a variety of topics, including collaboration, camera & head tracking, and as well as additional application of using AR.

Essentially this week, we were discussing about the social norms/acceptance of VR/AR; that we discussed all about the appearance of VR rather than functionality.

Avatar Appearance

One thing that Andy has mentioned in class that came striking to me was that in a social chat VR, aka a virtual room filled with virtual avatars – each avatar is controlled by one actual person – was that "higher up" users such as CEO's, bosses, etc, generally desired a more appealing avatar than other users. This was to show that they have more status than other speakers – assuming they were using this system to speak to their peers.

I have always thought this trend was only limited to video games (mmorpg is one genre). In short, many video games where microtransactions (pay real cash for in-game content) are predominant, one may use these microtransactions to purchase gear to their in-game avatar to look flashy or appealing which can never be obtained by users who don't pay at all. This creates a sense of hierarchy as Andy mentioned. On the other hand, there could be gear that could be only earned through extensive gameplay that even cash cannot afford.

However, in the world of VR, we have already paid great amounts of money to access this said hardware (VIVE) and software, shouldn't users have the right to customize their avatar in their will? This is why users **must** have some sort of customization to represent their virtual self (not everybody wants to be same as everybody else – just like in real life). But in order to keep the software engaging, depending on the software the user can obtain other gear for their avatar through playing or using the application – either through reward or game interaction. This creates a sense of hierarchy on players who are new to the game versus veterans.

Camera & Tracking

This is another VR/AR appearance aspect. The act of having our heads in VR being aligned with our real-life head's orientation is completely optional – just like any other aspect in a game. A player doesn't necessarily needs to see their character move/walk in a game, the player could mind as well be a block that moves on its own.

What I'm getting at here is that a lot of appearance aspects can be optional, but it may not be wise at all

to ignore them. Head tracking, is for one, a quite important part of VR/AR, it helps users connect themselves from the already disconnected environment, the VR world itself. Users can look at other user avatars and acknowledge their condition like in real life, without the need to communicate using text or speech.

Some examples include nodding, waving, or facial expressions. We as humans developed many ways to communicate without speaking, and including facial/head tracking is just another human sense added into the VR/AR application.

In terms of development, I feel that (given cheaper tools, no high-end technology) we are still greatly behind in true facial acknowledgement. Currently it's a lot more popular to use assets and models that are pre-made such as Mario to become a custom avatar, rather than to use someone's face made into 3d. Additionally mouth movements are generally accepted to just be either open or closed, but rarely anything in between for speaking movements. The cost to have such functionality-vs-effectiveness is very low – aka it's ok to just have 2 mouth movements, and have a pre-made 3d model.

Collaboration

In brief, collaboration works great when there is another group of people all willing to do VR rather than to speak in real life. Requiring everybody to obtain a VR headset to be able to visually see what one person wants to present can be costly and a hindrance to time. Often, it's better to just have one person display what they want to say or show (such as presenting the Solar System project), rather than everybody wearing a headset to see.

However, when we speak of games, the tables drastically turn. As seen with the VR team dodgeball, collaboration is required by other VR users to defeat an objective, most likely through teamwork. It turns out it's more like a learning experience to conquer tasks that would be easy to do in real life.

Currently collaboration in VR is quite low due to the cost of VR, and that not everybody has a headset of their own.

HoloLens

Back to the HoloLens, these lens as mentioned back within week 1 or 2, is currently greatly limited by its cumbersomeness and weight. The features it provides can potentially be great, but currently is riddled by bugs (such as pinch finger movement to shoot).

My take on this, is to make HoloLens appearance worthy, is that if it was a lot more lightweight – such as text/descriptions, instead of having a UI heavy scene which can block your actual sight of the real world. A light UI also requires less hardware and rendering, which can shrink down the need of having a gigantic block worn on the head.

The trouble of having a full-experience is, whether or not the lens should be controlled by the hand or eye gesture. Both are quite finnicky and can often fail before it succeeds.