

## What is Virtual Reality?

Virtual Reality (VR) is computer technology that replicates a real or imagined location and simulates the user's presence within that location that allows the user to interact with it. With it, you can be transported to new places, see things from new perspectives, and interact in novel ways.

## What is Game Spectating?

Game spectating is a new form of content where spectators watch "streamers", or people playing games. This can take the form of a single streamer interacting with many viewers, or of something larger scale like "esports", of which viewership rivals even the largest sporting events. Streamers will usually broadcast their gameplay on sites like Twitch or YouTube Gaming.

## Why Focus On VR and Game Spectating?

Virtual Reality as an industry is starting to take off. With launches of products like Oculus, HTC Vive, and Playstation VR, the industry is growing rapidly. Simultaneously, game spectating as an industry is growing just as rapidly. These two industries are ripe for companies to create awesome new content that can capture people's excitement and to keep them watching, as well as serve as a key differentiator between competitors.

## The SCOPE Facebook 2016 Team



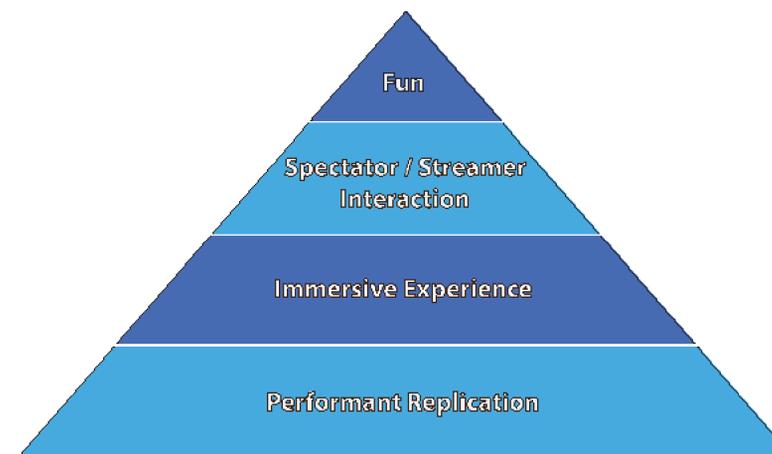
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 Views expressed are not those of Facebook

## Heirarchy of Needs

To create a great game spectating experinece in Virtual Reality, a number of neccessary elements must be present. Most important-ly, we need to be able to replicate what the streamer sees to what the spectator sees. Then, we must ensure that the experience is immersive, that is, the spectator feels transported into the world presented by the game, and isn't distracted by things like motion sickness. Lastly, our design work has indicated that we must include the spectator and streamer interactive pieces that are the primary draw to game spectating: the streamer's webcam and the chat. All together, these three elements must be present before there can be fun, and all three are needed to ensure people will keep coming back, putting on their headset, and watching.



## Goals for Game Developers

Throughout the semester, we established some goals for game developers to work for when they want to implement VR game spectating. The first is to focus on immersion first. If the experience isn't immersive, then people will not want to spectate the game. Giving the user some "framing", or fixed objects in space, help them to understand where they exist spacially within the world and increase the immersion factor. Additionally, we want to stress that each game will present its own unique challenges to acheive a great VR game spectating experience, and that a "one size fits all" approach isn't effective in creating something that people will want to watch. Lastly, developers can and should leverage their pre-existing networking technologies to make the replication piece easier to achieve.

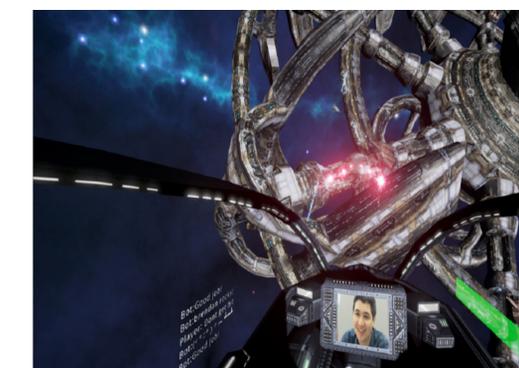
## Demos

We utilized Unreal Engine to create three demos that each focus on a different factor of what we have determined to be the ideal game spectating experience. Together, our demos encompass the features and concepts developers will need to keep in mind when developing VR game spectating features into their own games



With **ShooterGame**, we saught to attempt to find new perspectives for play-ers to watch from that are enhanced by VR. With a "freelook in-the-head" view, spectators can watch the streamer's back, making sure no enemies can sneak up on them.

In **VehicleGame**, we put a special emphasis on presence. By putting the spec-tator in the car next to the person playing the game and driving the car, we help to keep the player immersed within the game universe.



**SpaceGame** highlights how we can bring the critical game spectating aspects of chat and webcam into the game universe. By embedding the two within the cockpit, the spectator never feels taken out of their spectating experience.