
The Immersive Living Room

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Abstract

Console games have always had a special appeal. Not because of their advanced technology or fancy graphics, but because of the interactions they create between those in the same room. The gaming console is an instrument through which parents, kids, and visitors can share successes, failures, and fantasies. Upgrading the living room from the 2D flat screen to mixed reality requires understanding the social dynamics, so that we can preserve and enhance those experiences.

Author Keywords

Mixed Reality; Videogames

Introduction

The living room is a special place. Although it can eventually host an exclusive activity, most of the time it is a shared, multi-purpose space where multiple activities happen simultaneously. In a common day, it is easy to picture parents discussing about upcoming renovations, the small kids playing a board game, the older son browsing a magazine, while the daughter checks her phone. Since some activities naturally tolerate intermittent engagement, participants can change over time: a TV show may become a conversation topic in some moments and be completely ignored in others.

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Figure 1: Playing is a social activity.

As a shared place, the living room is also where the power dynamics related to the home space are more evident. Noisy deeds will eventually be silenced. Exclusive activities will require understandings on usage time. There is also the eventual negotiation of resources. For example, although the TV at low volume does not impair other activities in the room, only one activity can use the TV at a time. Who decides what to watch? The same is true for the couch or center table, which have limited physical space.

In many families, playing videogames is a regular living room activity. Parents that used to be gamers, now play with their children. Game consoles like the Nintendo Wii incorporated a new audience, due to its accessible input system. Videogames (and board games) fill an interesting role in the social dynamics, since they give players a reason to actively work on something together, rather than just watch. It is social activity that binds players together.

The Immersive Living Room

As entertainment systems move to immersive environments, they pose interesting challenges to the social dynamics of the living room. VR systems isolate the player behind the head worn display. Unable to see or hear others, much of the spontaneous communication is lost. Participants not wearing the headset also have difficulties following what is going on, since the TV image is reflects fast head movements and shaking. Some games successfully overcome these limitations with clever design. In “Stop talking and nobody explodes”, the VR player is the “defuser” and must communicate with the “experts” to get information on how to disable a bomb. The experts, on the other hand, cannot see the bomb but have access its technical specifications. The asymmetry encourages communication, resulting in a engaging gameplay. Stop Talking won several awards, including the Proto Awards for best social experience. Unfortunately, not all games can use the same approach.

A possible solution would be to allow multiple people to share the same virtual space, effectively creating a virtual bubble that encompasses everyone in the room. However, we would not want to replace the entire room, since it would prevent players from interacting with non-players. For this reason, the system also needs the ability to detect and bring people into the virtual space. We may also want to eventually include objects. For example, include the chair on which someone is sitting, so that the person is not floating in the air. The chair could also be skinned to look like an object from the game world (a crate, if follow the game cliché). To go further, the appearance of the person could also be modified. Playing a pirate game? Everyone could be automatically “enhanced” with eye patches and wooden legs.



Figure 2: Traditional VR isolates the player

What about the experience of those not actually playing? To support other activities, spectators would need to see whatever they are interested in: a book, knitting needles, the popcorn bowl. A more comfortable solution could be a composite in which the floor and furniture remain untouched, but the walls and ceilings are altered to reflect the expansive game world. Something along the lines of the enchanted ceiling of the Hogwarts Great Hall. Finally, non-players should be able to zoom in and out of the game world if they wish, helping to keep the shared aspect of the living room intact.

In the same way game consoles added non-gaming functionality, living room mixed-reality systems will also support non-gaming applications. Discussing the plans for the upcoming renovations would be much easier by sharing and interacting with the 3D model over the coffee table. Photos could be browsed in 3D space and the football broadcast could be accompanied by a real time overhead display of the field.

The ability to control what is being displayed is thus an essential feature of a shared immersive space. Although each user could as easily have a private virtual space, that would isolate people instead of bringing them together. Sharing content and selectively blending multiple virtual spaces seems the best way to maintain interpersonal and spontaneous interactions, while enabling the possibilities of the of augmented spaces.

Developing such a system brings many design questions. How does the interaction between users happen in the space between physical and virtual space? How can we prevent objects and people from interfering with the virtual content? Which metaphors are appropriate for sharing content? What about privacy controls? How do we control visibility of the physical space? What should we do with the

game audio and the parallel conversations happening in the room ? Those are questions that will help define the future of the immersive living room.

Conclusion

If immersive games are to become a social medium such as the TV and console games, they will need to support

a wide range of interaction and activities. One way to do that is to use mixed reality to bring players and non-players into the same space, while still allowing parallel activities to happen. Although there are many open questions, an essential feature of this system seems to be the ability to finely control occlusion of physical world and sharing of virtual spaces.