

HoloVista: Designing for Immersion

Using a mobile app to simulate an alternate reality

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Figure 1: A still from one of the environments in HoloVista

ABSTRACT

HoloVista is a mixed reality social media simulator game reminiscent of a near-future Instagram. Players experience a week in our protagonist Carmen's life through the places she goes, the objects she photographs, the thoughts she shares on social media, and her chats with friends. Every time Carmen travels to a new location in the story, players access a virtual camera, which allows them to view the game's environments in full 360°, finding and photographing significant objects. By taking photos and solving puzzles, players learn a secret that Carmen has been running since childhood.

Our goal was to create an immersive mobile XR experience with no peripherals. To achieve this, we relied on interaction design and narrative. Leveraging the phone's gyroscope and accelerometer, we gave players a sense of presence within a fictional space by letting them use the same motions/gestures to explore it as they would when examining a real-life scene through the game's camera. In this way, HoloVista engages the proprioception area of the brain, making people feel as though they are physically present in the world we have built. In this document, we explore several of our techniques for player immersion.

CCS CONCEPTS

• **Human-centered computing** → **Interaction design theory, concepts and paradigms.**

KEYWORDS

proprioception, mixed reality, immersion, simulation

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1 INTRODUCTION

Our goal with this project was to create an engaging experience for our players and immerse them into an alternate version of reality that we have crafted for them. The challenge was doing so with limited means - in this case, a smartphone with no peripherals. How can we convince a player that they're in HoloVista's world and not their own, when they can put their phone down at any time?

Three elements of HoloVista cultivated this immersive environment for players. First, the UI of HoloVista replicates the familiar patterns of today's popular social media apps. When a player enters into the character's "Instagram-like feed", they scroll. The action is ingrained and automatic.

The second UX element is the use of an in-game camera that closely resembles the design of the one created for their phone. However, when the camera in HoloVista opens: players don't see their own world anymore - they see ours. The player's space is

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re-contextualized, and now they have a clear window into a new world. Furthermore, because the player can move around in 360° to explore this simulated 3D space, they experience agency and immersion.

The final element is narrative. To be fully immersed, players have to relate an experience emotionally. HoloVista used several narrative techniques to appeal to the player's empathy and to blur the lines between HoloVista's world and that of the player's. In tandem with the interaction design, these techniques worked to create player immersion.

2 DESIGNING FOR IMMERSION

2.1 UI & UX

HoloVista draws heavily on existing design patterns from social media apps. Most people are accustomed to scrolling through a feed in order to keep up with friends and discover what is occurring in the world. When players explore the game's social feed to learn about Carmen's world, the muscle memory of scrolling helps to anchor them to the experience, even though it is their first time in this new space.

The idea with HoloVista's design was to mimic existing apps in order to create an automatic familiarity for players with a space they have never been in before. Any less familiar territory makes player on-boarding difficult and can break immersion from the very beginning of the experience. Keeping to existing patterns also allowed for more opportunities to subvert player expectations as the experience continued - both visually and narratively.

2.2 The Virtual Camera & Proprioception

The social media app in HoloVista has a camera button, just like Instagram does. However, when you tap the camera button in our game, instead of opening to player's phone cameras - it opens to a virtual camera, and into a new scene location in the game. Players can look around each scene in 360°, employing the use of their phone's gyroscope and accelerometer. They're given a list of objects to photograph - this is meant to put players in Carmen's frame of mind as she documents the various places she visits.

The camera game play is the portion of HoloVista that creates the deepest sense of immersion, and there's a neurological reason why: proprioception. Proprioception is a neurological sixth sense - it is your awareness of yourself in physical space.

HoloVista is able to tap into this sense by giving players control of how they view our environments using the same motions/gestures as they would when examining a real-life scene through their phone camera. In his paper "Exploiting Proprioception in Virtual Environment Interaction", Mark Raymond Mine posits that, when humans are having difficulty navigating immersive virtual environments because of a lack of haptic contact with real objects, they rely on exploiting the one real object every user has in a virtual environment, their own bodies. They do so by using their bodies' senses to help control manipulation, store and recall information relative to the body and use body-relative actions to issue commands. [Mine 1997]

HoloVista gives players an extra anchor of familiarity to lean on outside of their bodies. They are able to hold and physically move their window into the fictional world in their hands, while still

having a sense of their real space in their peripheral vision. This combination of sensory experiences causes the sensation of moving solely within the fictional sphere, making them feel as though they are physically present in the world we have built.

2.3 Immersion Through Narrative

HoloVista is an emotional story about a young woman coming to terms with her past. We felt that social media was an interesting container for this type of story, because we get to see Carmen putting on her best face for the outside world through her public posts, while at the same time struggling in private with her inner demons.

Stories with emotional complexity and relatability appeal to reader's empathy and increase the chances of them "getting lost" in the work. A study conducted in 2014 gave this phenomenon a name: the "Fiction Feeling" hypothesis. According to the fiction feeling hypothesis, narratives with emotional contents invite readers to be more empathetic with the protagonists and thus engage the affective empathy network of the brain ... than do stories with neutral contents. [Hsu et al. 2014]

Players need an emotional connection to the characters in the story to continue exploring a space. They need motivation as the acting protagonist to uncover secrets about their past that we've hidden for them, thus moving forward through the experience.

2.3.1 The ARG. A portion of our narrative-driven immersion technique actually takes place outside of the mobile app. Throughout the game and in our marketing media, attentive players are able to find subtle references to things like phone numbers and QR codes that exist in the real world, not just in the game's world. For example, in our release trailer, if players were to zoom in on Carmen's job offer letter from Mesmer & Braid, the architecture firm in the game, they'll see that there's a phone number. Calling this number leads players to a transmedia experience that plays out across multiple platforms, giving players a glimpse into the secret history of the architecture firm. If players never discover it, they can still enjoy HoloVista's story from start to finish, but if they decide to dive down the rabbit hole, it adds a whole layer of context to the story.

3 CONCLUSION

HoloVista is a mobile game that utilizes multiple approaches to engage players and deeply immerse them in a fictional world and does so with limited means. Our 360° in-game camera allows for players to look around a virtual space the same way that they would view a real-life scene, thus using ingrained motions that engage the proprioception area of the brain. HoloVista similarly appeals to players with a strong, emotional narrative and a familiar, simulated, social-media UI to keep them fully immersed in our world and our story.

REFERENCES

- Chun-Ting Hsu, Markus Conrad, and Arthur M. Jacobs. 2014. Fiction feelings in Harry Potter. *NeuroReport* 25, 17 (Dec. 2014), 1356–1361. <https://doi.org/10.1097/WNR.0000000000000272>
- Mark Raymond Mine. 1997. *Exploiting Proprioception in Virtual-Environment Interaction*. Ph.D. Dissertation. Chapel Hill.