Augmented Reality Theater Experience

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1. Introduction

Film is an essential form of entertainment. Birthed by the conception of the Magic Lantern in the seventeenth century [Parkinson 2012], film has evolved from black and white silent shorts to color motion pictures, digital projection, and most recently 3D and IMAX presentations. The film industry increasingly treats immersion as an imperative factor to attract patrons. However, our research shows that the current movie-going experience provides potential for immersion only within the auditorium itself, and there is a lack of engagement and immersion before and after the film in current movie theaters.

In this project, we propose an experience design to improve the immersive experience in movie theaters 5-10 years in the future. Combining augmented reality technology and virtual environments, patrons will transition through different phases in the movie going experience including a slow change hallway, an experience room, and a reflection lounge.

2. Our Approach And Design

Hour-long interviews were conducted with Erik Stolterman, an experience design professor at Indiana University, Sean Connolly, a former Universal Pictures story editor, Jon Vickers, a theater manager, and avid movie fans to gain insights. A focus group was conducted, and design ethnography was performed at movie theaters and a children's museum to study immersive experiences.

Creation of this experience begins in the main lobby with phase one: Preparation. Patrons are instructed to select their own seat and are given a pair of glasses. A virtual character greets the patrons, explains how the system works, describes the safety information, and directs them to the hallway leading to their movie.

Keeping patrons engaged in the hallway, the environment begins to alter slowly as introduction to phase two begins: Buildup. The hallway defamiliarizes the patrons from the real world and introduces them to an augmented environment, compelling them to examine their automated perceptions of a normal theater hallway [Bell et al. 2005]. For our example, the movie is set in a land of constant winter. The hallway transforms into a forest setting with trees around the patrons and snow at their feet. The technology of REVEL [Bau and Poupyrev 2013] uses tactile feedback to provide patrons with the sensation of touching tree bark on otherwise smooth surfaces.

Continuing out of the hallway places the patrons in the Experience Room as the third phase begins: Initiation. The room is themed according to the movie that is being shown. Keeping with our example, patrons are in the middle of a clearing with trees and mounds of snow all around. Patrons interact with each other and virtual characters from the film. They kick snow and feel snowballs brush against them. This felt experience is achieved through perceptual computing and the use of AirReal technology [Sodhi, et al. 2012]. Everything the patrons touch on the walls feels like the genuine counterpart. As patrons interact in the space, a virtual dragon featured in the film directs them to the theater entrance.

Under orders from the dragon, patrons enter the theater and phase four begins: Climax. The patrons' selected seats are highlighted through their glasses and a curved screen extends into their periphery. The theater is domed, and the virtual environment adapts to match the movie scene currently playing.

Following the movie, the fifth and final phase of the experience begins: Wind-down. Patrons leave via a different hallway returning them to the lobby where they have the option of attending a lounge for reflection. This serves as the consummation of the experience.

Patrons experience the slow-change hallway.

References

Bau, O., and Poupyrev, I. 2012. Revel: Tactile Feedback Technology for Augmented Reality. ACM Transaction on Graphics – ACM SIGGRAPH.

Bell, G., Blythe, M., and Sengers, P. 2005. "Making by making strange: Defamiliarization and the design of domestic technologies." ACM Transactions on Computer-Human Interaction (TOCHI) 12.2, 149-173.

Parkinson, D. 2012. 100 Ideas That Changed Film. London: Laurence King Pub.

Sodhi, R., Poupyrev, I., Glisson, M., and Israr, A. 2013. AIREAL: Interactive Tactile Experiences in Free Air. In Proc. ACM SIGGRAPH.

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