

# An analysis of the future of virtual reality film creation

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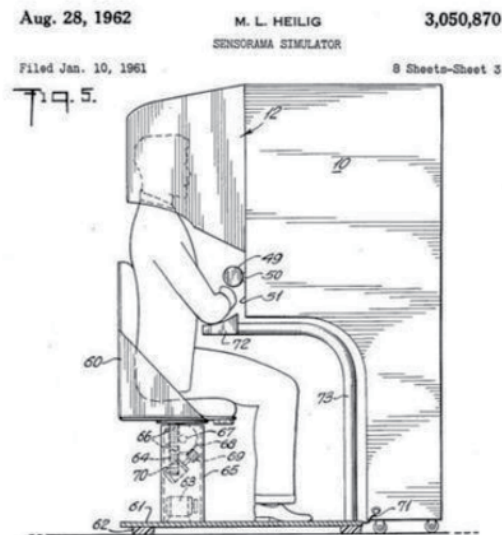
**Abstract:** The creation of virtual reality films is still in the exploration stage, and as of now, there are still relatively few image texts that can really be accessed and consumed by the public. Understanding the characteristics of virtual reality technology at this stage and exploring the relationship between its characteristics and film art will be beneficial to guide the creation of virtual reality films, and also make some reasonable predictions on the prospect of the application of this technology in image creation.

**Key words:** virtual reality film; film creation; immersive experience

Virtual Reality (VR) is a digital environment with computer technology as the core, combined with related science and technology to generate a high degree of visual, auditory, and tactile similarity to the real environment in a certain range, and the user interacts with the objects in the digital environment with the necessary equipment to create the feeling and experience of being in the corresponding real environment.<sup>1</sup> Virtual Reality was first proposed by Dr. Ivan Sutherlan, the founder of computer graphics, in 1965. It has been developed for half a century. In this half century, virtual reality technology is widely used in many fields such as technology development, military, commercial development, medical and industrial development, etc., but it has really entered the civilian market recently. The reason why virtual reality technology can have a significant impact on film is that it is not only the most popular technology, but also the most popular technology. The impact of virtual reality on cinema is due to its technology. As we all know, the movie experience is a restoration of the real environment, from the earliest black and white to color, from ordinary screen to IMAX giant screen, from 2D to 3D are the evolution of the restoration of reality, each evolution has brought great changes to the film industry, so virtual technology in the movie is very powerful. In his film concept, the American film theorist Stanley Solomon analyzed: “The physical characteristics of a film’s projection include area (height and width), the illusion of depth, color, and sound. These characteristics are simultaneously repelled by our senses in order to represent the entire aesthetic experience.”<sup>2</sup> It even reaches from the physical experience of reality to the psychological level of reality, a fully immersive experience that many filmmakers dream of, and there have been attempts to produce new video content using virtual reality technology: the

## I. The early attempts of virtual reality image creation

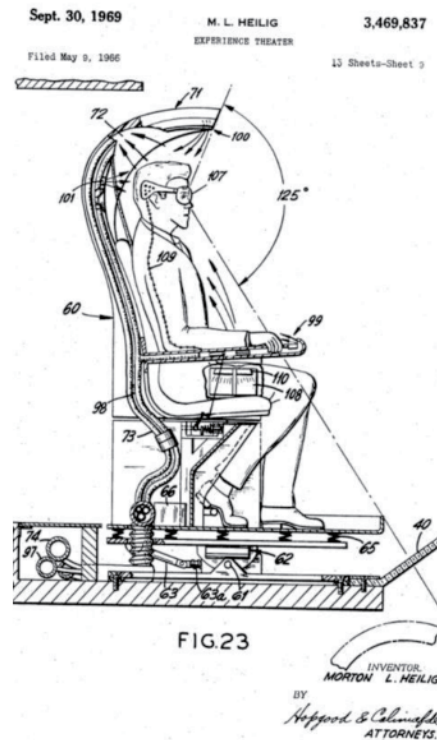
As early as 1956, American cinematographer Morton Heilig invented a multi-sensory experience called Sensorama stereoscopic film system, and in 1962 applied for a U.S. patent (see Figure 1).



This stereoscopic film system can be called the first real sense of virtual reality equipment in history, in addition to the head image of an overlay-type display, there are many with the body senses to stimulate and respond to the design: such as stereo sound system, vibration seat system, blowing equipment and even odor production equipment, this system because of the limitations of the technology at the time, the machine is quite large and complex structure, but he showed the concept of really But it is the first virtual reality system also demonstrates the inseparable relationship between virtual reality technology and film, which seems to indicate that virtual reality technology is designed to bring the ultimate sensory experience of the film, which makes the film in many sensory links towards an extreme.

In 1969, Morton Heilig also designed a theater patent “The Experience Theater 3”, the design of this theater using 3D concave

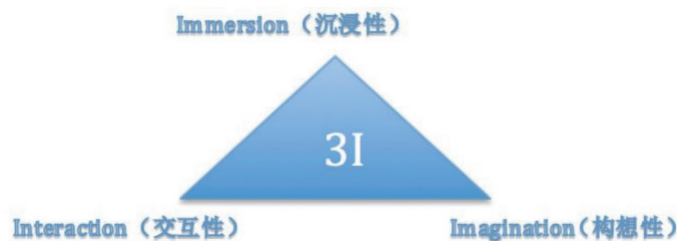
wrap-around wide-angle projection screen, can well cover the audience’s field of vision and produce depth. The location is designed with a vibrating chair, which allows the audience to produce synchronized displacement when the film image is in motion, plus a series of systems such as smell, temperature, wind, etc., which allows the audience to experience a realistic experience of reality that has never been experienced before.



The popular VR display devices on the market today are sci-fi like scenes that people couldn’t imagine back in the day. The current VR devices have superior performance, high definition, large viewing range and low latency, mostly in the form of a headset, which brings new possibilities for new forms of image creation. Imagine how exciting it is to integrate the huge and complex system of “Sensorama” into a portable and nimble head-mounted display device. As far as the history of film technology is concerned, virtual reality technology provides an opportunity to unify and maximize all aspects of the deep experience.

## 2. The three characteristics of virtual reality technology and its impact on film presentation

In 1993, Burdea G., an American scientist, presented a paper entitled “Virtual Reality Systems and Applications” at the World Electronics Conference, in which he mentioned for the first time the three main characteristics of virtual reality technology, namely “Immersion”, “Interaction” and “Imagination”, which This interpretation summarizes the characteristics of virtual reality technology very precisely, and is therefore recognized as the standard characteristics of virtual reality technology. The three characteristics are a complete chain of relationships that influence each other, and they are called the “triangle of virtual reality technology” (see Figure 3).



### (A) Immersion and Film Experience

Immersion refers to the experience of being surrounded by the virtual world, making it feel as if it is completely in the virtual world. This is the most important feature of virtual reality technology, which makes the experiencer feel that he or she is part of the virtual reality world, so that the experiencer changes from being a single observer to a participant, immersed in it and involved in the activities of the virtual world. The ideal virtual reality should achieve the goal of making it difficult for the user to distinguish between the real and the fake, to achieve a realistic contextual experience.

A movie is obviously the perception of a movie by the human sensory organs as a whole. The perception of a person watching the same movie in a cinema, on a TV set or on a small cell phone screen is definitely different.

This is even more obvious when talking about immersion. Without a suitable environment for the visual and auditory senses to receive the complete information of the movie, it is impossible to achieve the effect of immersion. This explains why audiences are more likely to go to the cinema to enjoy a movie than to watch it on a cell phone in a speeding subway.

The advantage of virtual reality technology is that it allows the sensory organs to access information while blocking other sources of information that may cause interference. Other displays, whether cell phone screens or movie screens, always keep the human eye at a certain distance from the display device, so it is also difficult to limit the interference of other visual factors on the eyes, and the auditory organs as well. In public places with cell phones to watch movies, the size is already small, many irrelevant visual information will occupy the human eye, the surrounding may be even worse existence of cars, dogs barking noise, even in the cinema, can not do complete interference information blocking, such as the front row may have a cell phone playing people shaking bright-eyed cell phones or crying children. Only virtual reality technology, its display device is directly covering all the perspectives of both eyes, so that it has established a completely closed visual environment for the eye as a visual organ, which has controlled the input source of visual information, in this closed environment content producers can show any content it wants to show, because there is no interference from other information, auditory can also do the same effect. From this point of view, virtual reality is the technology that can truly immerse the subject.

Virtual reality cinema is offering more possibilities for cinema, and the art and language of cinema will also undergo profound changes. Virtual reality film is still in the exploration stage, and there are still problems that need to be solved in many areas such as practice and theory. One of the delays is to find an alternative to the traditional film narrative means that can be destroyed to build immersion, which is the right solution to return to film as a narrative art.

## Notes:

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