

# Research on the Interactivity of Video Installation Art in the Digital Era

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**Abstract.** With the popularization of digital information technology, new media art has rapidly introduced to China, and various new media art exhibitions with unique themes have emerged in an endless stream, building a bridge between science and technology and art. Interactive technology is based on science and technology, the two collide and blend with each other, and gradually form a new art form, and the interactive video installation art that it has bred is not only an important form of artistic expression, but also the most vital one in new media art, with its unique autonomy and interactivity as a significant feature. This paper aims to explore and study the interaction between video installation art and people.

**Keywords:** New Media Art; Video Installation Art; Interactive; Digital.

## 1. Overview of Video Installation Art

### 1.1. Definition of the Concept of Video Installation Art

Digital technology facilitates the creation of contemporary art, and also provides possibilities for the development of artists' thinking. In the experiment of installation art, the image in the eyes of the artist is no longer just a tool, but more as a media material, which is combined and processed. Interactive video installation art is simply a comprehensive art form that combines video art and installation art. With the aid of hardware facilities, the deconstruction or reorganisation of various video structures is completed in the same space, and then fused with cross-media such as installation. The creation process of video installation art is a process of mutual influence and harmonisation of various thoughts, a process that closely links installation art, electronic technology and traditional video art, in which some of the characteristics of traditional video art are objectively preserved while continuing to be presented in a new form.

### 1.2. Comprehensive Integration of Video Art and Installation Art

The collision between installation art and video art began in the 1960s, with traditional photography, film, video and projection gradually being put into the field of installation art. With the continuous updating of modern art concepts and the expansion of the scope of influence, artists also began to innovate the methods and means of creation, and the boundaries between the various categories of art began to be less clear.

With the efforts of artists, installation art and video art were truly fused in the 1970s, and video installation art broke through the traditional art boundaries and transformed into a brand-new type of art on this basis. With the addition of more fresh forms of visual expression, artists have constantly challenged the bottom line of traditional visual art, and relentlessly explored areas that were previously inaccessible due to a lack of means of expression. As artistic creation becomes increasingly complex and diverse, with greater emphasis on form and collaboration, the intersection of video art and installation art often becomes inevitable.

The development of video installation art to date, more and more technical means can be used as a medium for artists to express, in a variety of high-tech fields, artists have gradually evolved a variety of tension in the form of art. With the continuous development and progress of computer technology, the maturity of human-computer interaction technology has injected fresh blood into the art of video

installation, and at the same time has become a strong supporting force for interactive installation art, spreading in popular culture at a very fast speed.

### 1.3. Pioneer of Video Installation Art - Bill Viola

As a pioneer of video installation art, Bill Viola was deeply influenced by artists such as Bai Nanhui in his early years, and has since had a direct impact on a new group of Chinese contemporary artists, enabling them to experience the artistic charm of visual video language. Most of Bill Viola's works are mainly video, but also installation art and cross-disciplinary fusion of forms of expression, including a large number of ultra-slow-motion use, so that he has successfully stood in the field of video art as a pioneer position, not only in the foreign quite influential, but also played a considerable influence on domestic artists.

In his artistic career, there are a large number of ultra-slow-motion video works, which set off a revolution in video art and a new definition of video installation art. In many of Viola's works, he has been exploring the power and complexity of human nature, turning his lens to human destiny, starting from birth, to death, and even regeneration. Vivid representations of the rise and fall, movement and stillness that the human body presents after facing great pressure. He is good at controlling colours and techniques, giving people a visual aesthetic impact, and is able to stimulate the viewer's emotional resonance to the fullest extent.

"Five Angels of the Millennium" is a monumental environmental video installation created by Bill Viola on the occasion of the millennium, featuring two performers presenting the "Angels of Departure", "Angels of Birth", "Angels of Incandescence", "Angels of Ascension" and "Angels of the Earth". The two performers present the "Angel of Departure", "Angel of Birth", "Blazing Angel", "Angel of Sublimation" and "Angel of Creation". The enigmatic images were recorded by the artist in 1999 under a swimming pool in Long Beach, California, USA. During the editing process, all five shots were slowed down, some were edited into reverse shots, others were inverted up and down, and the entire work is imbued with the power of the unknown.

Bill Viola takes sensory experience as the starting point of his creation, and he impacts the viewer's sensory experience through the contradiction of time and space and the blurring of perception. His work places the human being at the centre of the elements, drawing from a multitude of cultures and traditions. Thus, in Five Angels of the Millennium, the artist offers no narrative elements. "With these 'angels' the whole space is the whole work, and your body becomes the frame, the dividing line", says Bill Viola. The Five Angels of the Millennium seeks to provoke reflection on the state of human faith or spirituality at the dawn of a new age.

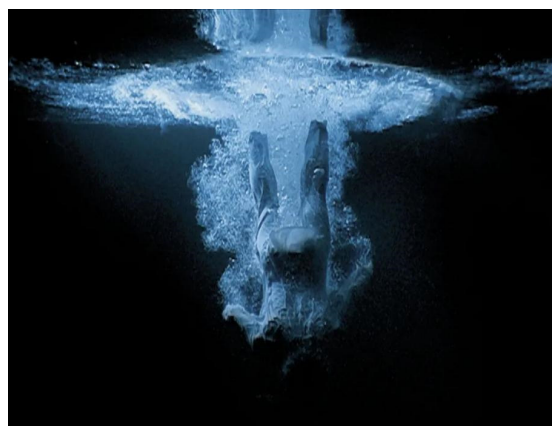


Fig 1. "The Five Angels of the Millennium"

## 2. Interactivity in Video Installation Art

### 2.1. Overview of Interactivity in Video Installation

The term "interaction" has been widely used in many fields and has become one of the most popular words of our time. Its influence is not only manifested in the change of the way of information exchange, but also in the change of the way of thinking and the way of life of the public. Through these changes, we can feel that "interactive art" has been favoured by designers and artists with its unique form and charm. Video installation art creates a three-dimensional environment, bringing the audience an immersive experience, so that the audience's senses can be fully involved in the environment provided, so in many forms of art, video installation art places more emphasis on the interaction and communication between the work and the audience.

### 2.2. Interaction Mode of Video Installation Art

After the development of any art in its heyday, it is inevitable to enter a deconstruction stage, and the new art form is the fusion of ontology and other cultures and arts. When the information dissemination of a single image or device reaches a certain level, it will naturally extend the interactive branch, image installation art is divided into a variety of interactive modes based on its diversified characteristics.

#### 2.2.1. Sound Sensing Mode

Human beings always know things through "seeing" and "hearing" to get the most direct information. In the process of human knowledge and exploration of the world, eyes and ears are the most important tools, through hearing and vision people can have a basic perceptual understanding of the world. On the basis of this understanding, rational thinking is carried out to further cognise the nature of things. For creators, they must use the most intuitive visual or auditory imagery, or a combination of both, to convey the artistic message they want to express.

For example, Robotic Voice Activated Word Kicking Machine, an interactive art installation by artist Neil Mendoza, is a device that automatically transforms speech into words. Experiencers transmit their words through the device to the virtual world, where they are instantly converted into words, and if a letter falls into another speaker in the meantime, it is converted into sound and transmitted to the real world. If a letter falls into the other speaker, it will be transformed into sound and sent to the real world. If the text touches the foot in the upper right corner, it will be "kicked" back.

The installation is a perfect combination of video art and installation art, exploring the interaction between the virtual and the real, and providing a new interactive experience for the viewer through the coexistence of sound and information.



Fig 2. Robotic Voice Activated Word Kicking Machine

#### 2.2.2. Motion-sensitive mode

Motion sensing is the most direct and powerful mode of interaction, and it enables an effective dialogue between the author and the visitor by capturing the viewer's movement trajectory to drive

the predefined image. Participants are able to maintain a state of communication with the artwork, while issuing simple commands based on the audience's own interests and needs, resulting in a rich effect of the artwork.

A typical example is the classic work "The Treachery Of Sanctuary" created by American art pioneer Chris Milka. The main body of the installation consists of three huge white screens, in front of which a pool of water is placed to act as a mirror. In front of the pool, there is a standing area where participants can "fly" with the aid of a Microsoft Kinect sensor and an infrared detector.



**Fig 3.** "The Treachery Of Sanctuary"

For example, the silhouette that appears on the first white giant screen is actually the silhouette of a flying bird that the participant is trying to touch using the projection, at which point the participant's shadow will be transformed into countless small birds, which will then be integrated into the flock of birds. Comprehensively speaking, the interactive mode of motion sensing requires highly configurable hardware facilities, ingenious creative thinking, and strong on-site interactivity.



**Fig 4.** "The Treachery Of Sanctuary"

### **2.2.3. Image Sensing Mode**

In our senses, vision occupies an absolutely dominant position. Therefore, image sensing mode can be said to be the most intuitive and direct way of interaction, and it is also the main tool and medium for people's communication. For example, in his latest installation "Plastic Reflections", Dutch designer Sis Biske outlines the audience's behaviour through the use of motion capture technology, and transforms a large amount of rubbish into the shape of the audience through silhouettes. As the viewer stands in front of the installation, infrared sensors are able to capture the contours of the viewer's body and remobilise the rubbish to recreate the silhouette. "Trash can be influenced by our personal behaviour," explains Siss. The installation brings the rubbish floating on the surface of the sea in front of your eyes, so that you can really feel the consequences of your actions.



**Fig 5. "Plastic Reflections"**

### **2.3. Characteristics of the Interactive Video Device**

Firstly, interactivity, interactivity is one of the most prominent characteristics of interactive video devices, through the use of electronic technology and other media to achieve the purpose of communication with the audience, the audience can operate independently, not only through the interaction to obtain the information that the author wants to convey, but also its convenient and interesting operation makes the way of obtaining information become more simple.

Second, immersion, immersion is a common feature of all works with interactive attributes, and immersion is the key to create a connection between the author and the audience. Through visual, auditory, tactile and other techniques, a multi-perspective scenario is created to bring the audience a stunning visual feast and immersive experience.

### **3. Problems and Development of Interactive Video Installation Art**

Although the interactive installation art has a strong freedom and diversity, but after a certain stage of development it relies on the cultural concepts and technical factors will gradually limit its development, and produce problems.

#### **3.1. Problems of Interactive Video Installation Art**

##### **3.1.1. Constraints of Cultural Concepts**

Interactive video installation art originated from popular culture, so it is natural that it belongs to the part of popular culture. Nowadays, the living standard of the public has improved significantly, people in the maintenance of the livelihood of the work, the psychological needs of leisure and entertainment, interactive art is in this era of soil germination and growth, the same as the Western world, interactive art is in the popular culture of the "blessing" of the development and growth. There is a natural connection between popular culture and interactive art: they are both interdependent and independent of each other; they penetrate and influence each other. In a sense, "interactive installation art" is the epitome of "popular culture". Popular culture relies on the market and develops with the development of the market. China's cultural market can actually be understood as the popular culture market, and interactive installation art develops on the basis of the cultural market, so the development of interactive installation art will be influenced by popular culture to a large extent.

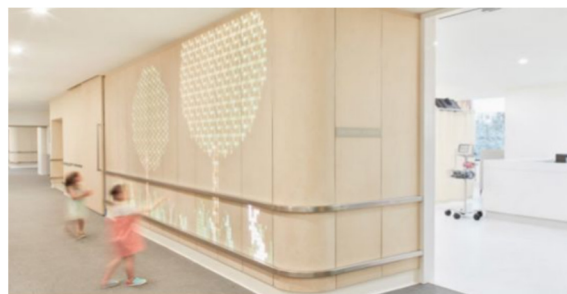
##### **3.1.2. Constraints of Technological Development**

It is clear that the reason for interactive video installation art is the fusion of science and technology and art, which also determines that the resources obtained in the process of exploring this art are subject to the overall level of technology, and it is necessary to update the technology in order to realise the innovation of the medium to present more possibilities. However, when technology advances to a certain extent, because of the limited level of social productivity, the development will enter a stage of stagnation. The means of expression of interactive video installation art needs to be based on technology, so the level of development of science and technology has a direct impact on the creation of this art.

### 3.2. The Development Prospect of Interactive Video Installation Art

Interactive installation art in a certain point of view can also be regarded as a game, which relies on a variety of technological development, including electronic information technology, multimedia technology, virtual technology and human-computer interaction technology, but if it only stays in the multimedia technology through the audience's sensory stimulation through the excessive pursuit of the future development prospects will be difficult to walk. If interactive video installation art makes full use of the popular culture context, and expands its social and practicality oriented to the market's health needs, it will be a beneficial trend for both the artists and the audience of interactive art.

For example, the interactive installation wall LUMES, a tripartite project between Australian studio Eness, the DesignInc architectural team and the local Cabrini Hospital, features an LED lighting system that animates in real time with the touch of pedestrians, with a total of fifteen themes to choose from, including, but not limited to, plants growing, the moon rising, and rockets ascending. It makes the hospital less repulsive to children, while adding a bit of life and fun to the hospital.



**Fig 6.** Interactive installation wall LUMES

Interactive installation art combines technology and art, and is able to adjust its size according to different environments and find a space suitable for its own play. Because of the existence of interactive systems, people can appreciate and communicate with the works through interactive ways, and while receiving artistic cultivation, they can also trigger their own thinking and understanding, and then inspire insights and insights into art and society.

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