The Screen as Architecture

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Abstract

This paper deals with the spatial properties of the cinematic, television or computer screen in multimedia installations. Through a series of case-studies dating from the interwar avant-garde movements to contemporary multimedia installations, we will attempt to illustrate the way that the screen surface is transformed from flat and frontal to a three-dimensional space of visualization. Artistic experimentations, in particular the expansion and multiplication of screen space and the encouragement of audience participation, assisted by the evolution of technology from analogue to digital, marked the introduction of immersive environments and interactive relations between spectator and image. In digital culture, the screen functions as a communication space for events and scenarios. Moreover, contemporary multimedia installations use the strong illusionary powers of the moving image and the notion of interactivity in an attempt to converge all modalities of perception in a conjoined space-time of real and virtual formations, creating an immersive narrative space with various levels of embodiment. Architectural design thus becomes an integral part of an installation, in terms of both virtual and physical space.

Introduction

While facing an artificial light image, the viewer is confronted with its dual quality: the materiality of the screen and the immateriality of the image. Instead of describing the use of architecture within the filmic or television image, the following account will consider the screen itself as architecture. We will attempt to highlight the way in which the emphasis on architectural space rather than the image gradually established an interactive relationship between image and viewer. This development has three major aspects: The most important is the attempt to expand and multiply screen space. The second is the tendency to hold the audience responsible for completing the artistic proposition, thus encouraging active intervention instead of passive absorption and contemplation. Audience participation is the forerunner of interaction, which is the third aspect in the changing relationship between the viewer and the screen. The argument will be presented through a series of case studies that are located between architecture and non-architecture, dating from the beginning of the twentieth century until now. The selected works use a diverse range of expressive means, materials and techniques, thus breaking down the barriers within the arts.

Expansion and Multiplication of Screen Space

In regard to media art, two underlying currents are identified. The first may be described as an audiovisual experience constrained by a bounding border, which separates fictional from real space, i.e. the frame of a painting, the proscenium arch of a theatre, the casing of a television, the border of a cinema screen. The second group of artworks is characterized by the attempt to discard the frame, so that the created space is released as an immersive experience. The development from the theatrical proscenium arch format to the panoramic screen enlarged the cinematic frame until it virtually disappeared.

The quest for the expansion and multiplication of the cinematic frame is traced back to the avant-garde movements of the beginning of the twentieth century in the context of the discussion on ways of liberating visual arts from the conventional contemplative way of viewing a painting. As Walter Benjamin mentions in his essay *The Work of Art in the Age of Mechanical Reproduction*, the Dadaists intended to destruct the aura of their creations, making it impossible for the viewer to contemplate before them. Their artworks are thus gradually fragmented in a group of dispersed items that surround the viewer, introducing the concept of the environment and the installation.

During the same period, thoughts of challenging the fixed rectangular format of the cinematic frame are found in the work of László Moholy-Nagy, who proposed large spherical screens and simultaneous projections in a poly-cinema.[1] In 1930, Eisenstein proposes the ‘dynamic square’, a screen with changeable proportions of the

projected picture.[2] Certain artworks of this period may be singled out as a reference to later multimedia installations. Nagy's kinetic sculpture *Light Space Modulator* (1930) used the concept of motion, not only within the work itself, but on the part of the viewer, as well as the innovative use of the light beam. As it moved, the modulator created shadows on the back walls that resembled an abstract film with no frame. The quest for the expansion of the cinematographic frame is depicted in Abel Gance's *Napoleon* (1927), which was filmed with three interlocked cameras. The final composition created either an expanded panoramic view or a triptych of two separate actions that framed the central one. The resulting complex spatial and temporal relations between the three screens are in line with the cubist quest for depiction of a subject through multiple viewpoints.

The experimental cinema of the interwar period, in particular works of Fernand Leger, Viking Eggeling, László Moholy-Nagy, Oscar Fishinger, Man Ray and Marcel Duchamp, served as the source of inspiration for innovative post-war film production. However, these films were generally considered a by-product of the modern movement, whereas the independent filmmakers of the 1960s were very conscious of creating a new branch of art. In the fall of 1965, a survey entitled 'Expanded Cinema' was screened at the Film Maker's Cinematheque in New York. This survey initiated its development as a mass movement, inviting large audiences and introducing specialized publications. Extensive experimentation led to a complete deconstruction of the cinematic apparatus, i.e. the camera, the projector, and the projection surface. This resulted in the production of films with unprocessed celluloid (Nam June Paik, *Zen for Film*, 1962), or films with a thread instead of film (Hans Scheugi, *zzz: Hamburg special*, 1968). In other works, the light beam became the sole matter of the artwork (Anthony McCall, *Line Describing a Cone*, 1973).

The projection screen was exploded and multiplied, either through division into multiple images using split-screen techniques or by placing screens on several different walls (Henry Jacobs, Jordan Belson, the Whitney Brothers, *The Vortex Concerts*, 1957-59). In experiments with the projection surface, films were projected on curtains of steam with running water (Robert Whitman, *Shower*, 1964) or on human bodies (Robert Whitman, *Prune Flat*, 1965). From 1958 Milton Cohen developed the *Space Theatre*; an environment for multiple projections using mobile rectangular and triangular screens. In *MovieMovie* (1965) by Jeffrey Shaw, Theo Botschuyver and Sean Wellesley Miller, films and light were projected onto a pneumatic sculpture which spectators could move. Thus the screen became in a number of ways multiple and mobile, as well as flat or curved, or was replaced by unusual materials like buildings, geodetic domes, plastic balls, helium-filled plastic hoses and so on. These experiments aimed at the intensification of visual experience, at the same time drawing attention to the spatial and architectural dimension of the screen.

The notion of variable and dynamic screen space is used in mainstream projects, such as corporate pavilions in international exhibitions, in particular the 1958 Brussels Expo. Josef Svoboda, a Czech artist with a theatrical set design background, presented the *Laterna Magika*, which was based on the notion of interaction between physical and image space. In the same exhibition he presented the *Polyecran,* an audiovisual project that aimed at creating space through film projections on eight screens placed throughout the space and was based on rhythmical links between sound and film. The interwar avant-garde concept of making abstract moving image films according to musical principles was taken a step further in the architectural design of the *Philips Pavilion* by Le Corbusier and Iannis Xenakis. The architectural design of the pavilion, composed of hyperbolic paraboloids, was inspired by Xenakis' musical composition *Metastasis* (1955). Between corporately sponsored projects and 'Expanded Cinema' performances, multiple screen projections became a marked visual display practice of the 1960s. In an age of renunciation of social conventions and mind-expanding drugs, multiple projection environments embodied a new imaging technology that would articulate this new perception of the world.

In the 1960s, the cinematic code was extended with analogous means. Shortly afterwards, the video recorder was introduced and the cinematic code was expanded electromagnetically. As video was introduced as an emerging art medium, a large group of artists – Nam June Paik, Bruce Nauman, Bill Viola, Gary Hill and others – used multiple monitors or split screen techniques to experiment with the fracturing of time and the spatial qualities of the video image. The shift from the composition of the image to the composition of space was enhanced by the introduction of notions such as the human body, movement, events and scenarios into architectural thought, mainly in the writings

of Bernard Tschumi.

Audience Participation

The 1960s attempt to make audiences actors rather than observers is a concept that may also be traced back to the interwar avant-garde movements, where artists consider themselves part of the upcoming social change. El Lissitzky mentioned that paintings hanging on the wall encouraged passiveness, while the contemporary artist should aim at making people active.[3] Marcel Duchamp noted that "art is defined by context and completed by the spectator's response."[4] Duchamp's concept is clearly stated in his work *Étant donnés* (1946-66) where the viewer enters a dark room and peeps through a small illuminated hole. He or she is then faced in with a provocative picture of a nude female. The work is completed only when the viewer actually bends down to see the picture.

The 1950s kinetic artworks required spectators to move around in order to appreciate the structure of the work. Audience participation was similarly encouraged in the happenings and performances of the 1960s, as it was regarded as an expression of democratic ideals. During the 1970s, video artists made use of the inherent properties of the video medium, namely the closed-circuit installation which allowed the spectator to see himself in the video monitor, thus making the spectator part of the system that he or she observes (Bruce Nauman, *Live-Taped Video Corridor*, 1970). Direct interaction with the video screen image was also possible (Nam June Paik, *Magnet TV,* 1965). Video installations anticipated the observer-relative and time-delayed interactive computer installations of the 1990s, in which one finds parallels both in terms of content and motif.

Interaction

The concept of the spectator's active involvement in artworks that made use of the moving image was present long before the emergence of computer technology. In Raduz Çinçera's interactive film *Kinoautomat*, presented at the 1967 Expo in Montreal, viewers decided on the plot development voting each time between two alternatives, with the aid of devices placed on their seats. His project *Cinelabyrinth* (Osaka Expo, 1990) introduced a spatial way of creating multiple narrative paths. The spectator walks through a series of rooms where sequences of the film are repeated in a loop. Evidently, the development of the film depends upon the viewer's chosen route.

In computer culture, the screen hides and exposes territories of information spaces. The possibility of embedding hyperlinks adds further spatial and temporal dimensions. The fluid and dynamic character of digital space gives birth to a new mental experience, that of interactive navigation. The screen thus functions as a communicative space of events and scenarios. Tschumi emphasizes the role of the human body in generating spaces produced by and through its movement. He considers that human movement constitutes the intrusion of events into architectural spaces. On the other hand, Antoine Picon illustrates a growing pre-eminence of events and scenarios over static entities in contemporary architectural design. Under the influence of computer and communication technologies, architectural form becomes similar to a cross-section in a continuous flow.[5]

The design of interactive navigable spaces is based on events and scenarios. The 1978 Aspen Movie Map, designed by the MIT Architecture Machine Group, is acknowledged as the first interactive, navigable multimedia space. In Jeffrey Shaw's *Legible City* (1988-91), the visitor rides a stationary bike through a simulated representation of a city (Manhattan, Amsterdam or Karlsruhe). The existing architecture of these cities is completely replaced by letters and texts, which in the Amsterdam or Karlsruhe versions are scaled so that they have the same proportions and location as the actual buildings they replace. Thus, the architecture of the city is carefully represented using a vocabulary of abstraction. The *Legible City* illustrates Lev Manovich's remark that digital space is always navigable space and functions as something traversed by a subject rather than a static representation of an area.[6]

The Interface

In the *Legible City* a modified bicycle is used as the interface between the viewer and the image. Its handlebar and pedals are linked to the computer, giving the viewer/user control over the speed and direction of travel. The design of the interface is at the heart of current artistic research, as it is the point of contact where humans and machines meet in order for exchange to take place between the virtual (screen space) and the real (physical space). However, it cannot be identified solely as a technical gadget; the interface must be designed bearing in mind the virtual architecture of a work, which must be explored by the viewer.

The interface is a web of metaphors. Lev Manovich has introduced the concept of the cultural interface, which is largely made up of elements of familiar cultural forms, based

on the cinematic tradition of the moving image, text/typography and painting. The introduction of the window metaphor as a way of navigating through various levels of information was made in the Apple Lisa (1983), the first *personal* computer with a graphical user interface (GUI). Principles such as direct manipulation of objects on the screen, overlapping windows and dynamic menus present the user with a practically unlimited amount of information, despite the limited surface of the computer screen, thus introducing an additional spatial dimension to the computer screen.

In regard to the design of interaction with the screen, one must bear in mind that the observation and contemplation before a scene must be constantly negotiated against exercising control over it. In the virtual reality installation *Osmose* (1995), by Charlotte Davies, the observer wears a head-mounted display (HMD) and controls navigation by means of a vest filled with sensors. Movement within the virtual environment is controlled by breathing, in a manner similar to scuba diving, thus achieving full body immersion in an all-encompassing space. Oliver Grau notes that, as the interfaces become more natural and intuitive, the psychological detachment from the work gradually vanishes.[7]

Immersion

The artificial light image has strong illusionary powers, as it distracts viewers from the world around them. A large group of contemporary multimedia artworks place the viewer in the centre of the piece, in an attempt to immerse him or her in the picture. The main feature of digitally expanded cinema is the convergence of all modalities of perception in a conjoined space-time of real and virtual formations, thus creating an immersive narrative space with various levels of embodiment. The visitor is then invited to spontaneously perform and therefore construct alternative architectural and social meanings.

The concept of immersion is traced back to the Wagnerian *Gesamtkunstwerk*, the complete work of art that is created through the synthesis of all other arts (music, poetry, dance, architecture, sculpture and painting). The concept of the *Gesamtkunstwerk* is often referenced in combination with the medical term *Synaesthesia*, which is used to describe the neurological condition where two sense modalities interact in human perception. In his book *Expanded Cinema,* Gene Youngblood states that the multimedia installations of the 1960s embody the notion of the 'complete work of art' and refers to these projects as 'synaesthetic cinema'.[8]

In the realm of digital culture, the 'complete work of art' concept acquires a new meaning, as all digital expressive means are based on the basic unit of information storage, the bit. Digital technology offers complete control over cinematic recourses, making the further expansion of the cinematic code possible. Digital compositing is based on many layers of data that create a unified whole, which however retains its original modularity. In Jeffrey Shaw's *Place Ruhr* (2000), a link between virtual and actual spaces is created. Shaw attempts to immerse the viewer in a panoramic picture by fusing simulated with real space. The viewer is placed on a rotating platform in the centre of a circular screen and interactively rotates a projected image around the screen in order to explore a virtual 3-D landscape. This work places the panoramic imagery in an architectonic framework, thus enhancing the virtual landscape through the architectural design of the installation.

Conclusion

The aim to free film from its flat and frontal orientation and present it with an ambience of total space lead to the transformation of the projection screen into an interactive surface, thus enabling the actor/viewer to create his or her own space of visualization. We discussed the spatial qualities of the screen through a series of case studies, dating from the interwar avant-garde movements of the twentieth century to contemporary multimedia installations.

The challenging of the rectangular format of the cinematic frame, the expansion and multiplication of screen space, as well as the concept of audience participation and interaction in the artwork are traced back to the early twentieth-century avant-garde movements. These tendencies were revived in the 1960s. The deconstruction of the cinematic apparatus within the Expanded Cinema movement resulted in extensive experimentation with the projection screen. The video installations of the 1970s further expanded the cinematic code and anticipated the developments in the digital installations of the 1990s.

The experiments with multiple screens mark the introduction of immersive environments and the interactive relations between spectator and image found in contemporary multimedia installations. The computer screen now functions as a communication space for events and scenarios. In particular, the window

metaphor introduces an additional spatial dimension to the computer screen. The relationship of the viewer with the image has changed from frontal and contemplative to interactive and immersive, thus blurring reality and fiction. As architecture determines the conditions of an aesthetic experience, it is evident that viewing light images demands a particular type of architectural design both in terms of the physical and the virtual world. Architectural design thus becomes an integral part of an installation and deals with the screen surface as a fluid and interactively transformed element.

Notes

1 Stefan Themerson, 'The Urge to Create Visions', in Jeffrey Shaw & Peter Weibel (eds), Future Cinema – The Cinematic Imaginary After Film, Cambridge / Massachusetts, London / England: ZKM Center for Art and Media Karlsruhe, The MIT Press, 2003, p. 42.
2 Anne Friedberg, The Virtual Window – From Alberti to Microsoft, Cambridge / Massachusetts, London / England: The MIT Press, 2006, p. 13.
3 Julie Reiss, From Margin to Center: The Spaces of Installation Art, Cambridge / Massachusetts, London / England: The MIT Press, 2001, p. xxiv.
4 Gene Youngblood, Expanded Cinema, London: Studio Vista, 1971, p. 347.
5 Antoine Picon, 'Architecture, science, technology and the virtual realm', in Antoine Picon & Alexandra Ponte (eds), Architecture and the Sciences Exchanging Metaphors, New York: Princeton Architectural Press, 2003, pp. 303-313.
6 Lev Manovich, The Language of New Media, Cambridge / Massachusetts, London / England: The MIT Press, 2001, p. 284.
7 Oliver Grau, Virtual Art – From Illusion to Immersion, Cambridge / Massachusetts, London / England: The MIT Press, 2003, pp. 193-202.
8 Gene Youngblood, Expanded Cinema, London: Studio Vista, 1971, pp. 75-77.

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