

Digital Media and Cinematic Point of View

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Immersive and interactive digital environments and games will be great challenge to the traditional film. Jay David Bolter believes that there are influences in both directions and that probably the conventional film will not vanish. One thing, he says, we should recognize about our culture at the end of the twentieth century is that it is quite heterogenous: there is no single solution that will satisfy every cultural need. This is clearly true in the visual arts. Some audiences will prefer films in which they will receive images in a fixed order, just as they have done for a century. Other audiences (or perhaps the same audiences at other times) may want to interact with images in new ways. We can look forward to a spectrum of creative possibilities for visual media.

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At the Georgia Institute of Technology in Atlanta, Professor Larry Hodges and his colleagues have recently conducted a fascinating experiment in virtual reality. In their virtual reality system, as in others, the subject puts on a so-called "head-mounted display" and is suddenly surrounded by a computer generated world--in this case, a world of high places: a balcony overlooking a street, a rope bridge stretched precariously across a skyscraper canyon, and an open elevator in the tall foyer of a virtual hotel. The subject is free to explore this virtual environment. In the elevator, for example, he can press a button and make the elevator rise up to 40 stories above the floor of the hotel; he can press another button and bring the elevator back down. What is unusual is that all the subjects in this experiment are acrophobics, people with a morbid fear of high places. The point is to see whether these acrophobics react with dizziness, sweaty palms, and shaky knees to the virtual heights they are visiting. The experiment works; the acrophobics are almost as afraid in this virtual space as they are in the real world. They are frightened even though this is not a very realistic scene, even though the shapes are very simple, the colors are artificially bright, and there is no sense of atmosphere. At some level the subjects must believe they are really in the elevator or standing on the balcony; they must feel themselves to be present in these virtual spaces.

The Acrophobia Project is about fear; by inducing fear in the subjects, it seeks to provide a convincing proof of virtual presence. In general, the goal of virtual reality is to create in us the sense of presence that we have as we walk in the real world, and the Acrophobia Project shows how we can have similar feelings in virtual space as we have in real space. Now, the Acrophobia Project is not just a computer program; it can also be thought of as a very short and simple cinematic drama, a visual narrative, told from a first-person point of view, in which the subject plays the main and only character. The subject constitutes the narrative, makes up the story of his fear, as he goes along.

This virtual drama also has its own obvious precursor in the history of film: the famous opening scene of Alfred Hitchcock's *Vertigo*. In the first seconds of that film, James Stewart's character, Scotty, slips on the surface of a steep roof, slides down, and finds himself hanging from the gutter. As he looks down at the street far below, Scotty has an attack of vertigo. In a famous point-of-view shot, the viewer looks through Scotty's eyes and experiences his dizzy fear. As the viewer looks down, the distance to the street seems to increase and diminish at the same time. Scotty is trying to escape from falling and yet is being pulled down at the same time, and so is the viewer.

Both the Acrophobia Project and the Hitchcock film *Vertigo* take as their subject a character who learns about himself through his fear. The goal of the Acrophobia Project is to overcome the fear of heights; it is designed to help the subjects by exposing them to heights in a measured, gradual way, which is a currently accepted clinical treatment for phobics. In the film *Vertigo*, Scotty also overcomes his fear, although not by gradual exposure to heights, but by a powerful and shocking revelation at the end of the film.

The reciprocal influence of digital graphics and film

This thematic interdependence between an academic experiment in virtual reality and a popular film by Hitchcock suggests a complex relationship between the cinema and the new digital technologies. Digital graphics are already the most important technological developments for film since the introduction of color or perhaps the introduction of sound. Digital graphics are everywhere in film today, and they seem to have completely taken over the aesthetic of the traditional Hollywood film.

Yet there is also an influence in the other direction: film is helping to determine the cultural meaning and practical application of new digital technologies. As much as any visual art in the twentieth century, film has taught us new ways of seeing. These filmic ways of seeing are having an influence on how we construct and use such digital technologies as virtual reality and computer games. In other words, our understanding of these virtual environments is defined in part by our long experience with film.

Specifically, virtual reality and computer games are indebted to the first-person point of view or subjective camera techniques of the cinema. A virtual environment is in fact nothing but an exercise in point of view: it places the viewer at the center of a graphic world and invites him to explore that world from his own perspective. The subjective camera has been placing viewers at the center of a filmic world for decades, and even when the subjective camera is not used, modern film is still an exercise in shifting and changing points of view.

Point of view in digital technology

Until recently it was not obvious that computers had the capacity to create point-of-view visual experiences. Computers were not thought of as visual technologies at all. The computer was designed about fifty years ago to solve numerical problems for scientists and engineers, and over the past few decades, and especially since the 1980s with the advent of the personal computer and word processing, we have come to understand the computer as a technology for storing, processing, and presenting information in the form of words and numbers -- in other words, as a writing technology. However, with the recent triumphs in computer graphics, we must now understand the computer not only as a technology for writing, but also as a technology for seeing.

The history of computer graphics dates back to experiments in the 1950s and 1960s, but it is only recently that digital graphic techniques have become available to wide numbers of users with inexpensive drawing and rendering programs and powerful personal computers. Also in the last two decades, computers have become increasingly important for special effects in film and on television. Each new animated film by Disney, for example, is a further demonstration of the power of computer graphics, and such films are extremely influential in the contemporary world of entertainment. Disney's animations make computer graphics visible to an audience of tens or even hundreds of millions of people, all of whom become in effect indirect users of computer graphics. Far more people have seen *Toy Story* or *Jurassic Park* than have ever sat down in front of a computer and used a word processor.

But digital graphic display is itself only part of the story. Graphics can be used in traditional films to create special effects, but in such films there is still the traditional relationship between the viewer and the images on the screen. Even a film like *Toy Story*, which consists wholly of computer-generated images, is still a conventional film with a conventional narrative. What is more important is that the viewer can be given some degree of control over the images: that the computer can make digital images interactive.

The viewer's control is most obvious in what is called "immersive virtual reality," for example in the Acrophobia Project described above. In immersive virtual reality, the viewer wears a helmet with two small monitors before his eyes and so sees exactly only what the computer draws for him to see. In addition, there is a tracking device built into the helmet. When the viewer moves or turns his head, the tracking device notifies the computer, and the computer redraws the scene to match the viewer's new perspective. So the viewer controls his point of view through the simplest of interface techniques - by turning his head. In effect, the viewer is watching a point-of-view film for which he is himself both the director and the cameraman.

Immersive virtual reality is suggestive of a new relationship between the viewer and the graphic representation; however, it remains expensive and unwieldy. Computer graphic worlds can also be created on conventional computer screens. Although the conventional screen is flat and does not occupy the viewer's entire field of view, graphics on the screen can still provide a compelling sense of presence, as is attested by the popularity of various computer games, such as *Doom* and *Myst*, which are also exercises in point of view. In *Myst*, for example, the player finds himself alone on a strange island, and his task is to explore the island and uncover its mystery. *Myst* is therefore a detective film in which everyone has disappeared except the detective. The player sees everything from his own point of view, and the world he sees has a menacing emptiness that reminds us of film noir or other genres. Like other current computer games, *Myst* is consciously cinematic: it employs the "subjective camera" developed in the cinema and even makes use of opening titles and background music just as conventional films do. We understand and appreciate *Myst* precisely because we know what happens in detective films.

Computer graphics has borrowed point-of-view narrative from traditional film, but with an important difference. In traditional cinema, the director and editor control the camera and therefore the viewpoint at all times. The essence of film editing is a carefully controlled sequence of points of view, and this control makes us regard the director and editor (rather than the actors) as the "authors" of a film. By contrast, in interactive digital graphics, the point of view is no longer under "authorial" control. The viewer himself becomes the author of his own film, and this paradox reminds us a similar paradox for verbal hypertext in its relationship to conventional narrative fiction.

As many literary critics have realized, hypertext too transfers control from the author to the reader. Generally a hypertext consists of many relatively short prose passages joined together by electronic links. While the author creates the links, the reader decides which link to follow from each passage. Since following links will determine the order in which the passages are presented, the reader is sharing control of the narrative with the author. In effect, the reader is exploring a textual space of possible readings--just as the viewer in virtual reality is exploring a visual space by moving around and by turning his head. So verbal hypertext and interactive graphics both constitute a challenge to the notion of authorship. Hypertext is to literature what interactive graphics is to film, because in both literature and film, traditional authorship means control of the presentation and ultimately of point of view.

Cinema's response

The new point of view technologies can be regarded as a threat to the traditional experience of the cinema. If viewers come to accept the interactivity of computer games, they may no longer appreciate the conventions of linear film.

How might filmmakers respond to this challenge? In this context, it is worthwhile to consider how prose writers have reacted to the appearance of verbal hypertext. A few writers of quality have taken up the challenge and produced important hypertexts. One, for example, is Michael Joyce in his seminal work "afternoon." Some other important writers have kept an open mind and begun to experiment: the short-story writer and novelist Robert Coover has become something of a champion of hypertext in the United States. But most have simply ignored hypertext and continued with their linear prose. They may well use a word processor to produce their novels, but they have not created texts to be read in the electronic medium itself. Many writers who have noticed hypertext at all have denounced it. The novelist Annie Proulx, for example, has said that "no one is going to read a novel on a twitchy little screen. Ever." However, cinema does not have to follow the short-sighted lead of prose fiction. The coming of interactive computer graphics can be viewed as an opportunity to expand the creative reach of the cinema in at least two ways.

The first, more obvious way is for traditional filmmakers to begin to produce interactive films. Most of the current interactive "films" (that is to say games) are made by people with programming and graphics skills, but no cinematic skills. These games (*Myst*, *Doom*, and a host of others) are, as noted above, consciously cinematic; however, for the most part, they imitate popular, Hollywood cinema, which is presumably what these programmers and graphic artists know. They do not exploit the capabilities of the medium as independent filmmakers could do. In fact, some filmmakers and media artists are already beginning to

explore the possibilities of interactive video. But there is much room here for further experiment.

It is true that creative filmmakers will face a new challenge, precisely because in an interactive film or video, the filmmaker cannot have complete control over the order of images and scenes. As indicated, he faces the same problem faced by the writer who is constructing a hypertext: both must relinquish precise control at one level and reconceive their task on a higher level. In hypertext, the novelist designs a space of possible readings. In a "hyperfilm," the filmmaker will likewise be architectural: he will be designing a space of possible readings or viewings, a visual world through which the viewer can move. Turning this visual world into a narrative will be difficult, but in the process the interactive filmmaker does not have to relinquish total control. As with hypertext, the filmmaker can, for example, produce short video segments and then set up links so that the viewer can move through them in a variety of orders. This is just how a hypertext works in prose, and, for that matter, it is how current video games work as well. The filmmaker's task is to limit and shape point of view while still providing the viewer with meaningful choices.

There is another possible response on the part of the cinema to interactive digital technologies. Traditional film can maintain its linear character and the relationship of author to audience, while at the same time taking lessons from digital technology. Traditional linear film can both draw on and critique the new technology. For example, following the lead of digital technology, filmmakers might choose to make greater use of the subjective camera. An audience of viewers familiar with computer games may come to appreciate more point-of-view shots in film too. On the other hand, cinema could choose to rebel against the subjective camera, as a comment on the excesses of computer games. If it did rebel in a thoughtful way, the cinema would be performing the same role that it has performed in the past -- to critique conventional ways of seeing in our culture.

One thing we should recognize about our culture at the end of the twentieth century is that it is quite heterogenous: there is no single solution that will satisfy every cultural need. This is clearly true in the visual arts. Some audiences will prefer films in which they will receive images in a fixed order, just as they have done for a century. Other audiences (or perhaps the same audiences at other times) may want to interact with images in new ways. We can look forward to a spectrum of creative possibilities for visual media. At one end of the spectrum there is traditional cinema, in which the filmmaker maintains complete control. At the other end, there will be virtual reality environments in which the viewer has apparent freedom to explore. Between those extremes there are opportunities for shared control, where the filmmaker may set up alternatives and the viewer may choose among them. At any of these points, there may be legitimate visual and artistic experiences.

Links

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