Prologue: Vertov's Dataset

The avant-garde masterpiece *Man with a Movie Camera,* completed by Russian director Dziga Vertov in 1929, will serve as our guide to the language of new media. This prologue consists of a number of stills from the film. Each still is accompanied by a quote from the text summarizing a particular principle of new media. The number in brackets indicates the page from which the quote is taken. The prologue thus acts as a visual index to some of the book's major ideas.

[78–79] A hundred years after cinema's birth, cinematic ways of seeing the world, of structuring time, of narrating a story, of linking one experience to the next, have become the basic means by which computer users access and interact with all cultural data. In this respect, the computer fulfills the promise of cinema as a visual Esperanto—a goal that preoccupied many film artists and critics in the 1920s, from Griffith to Vertov. Indeed, today millions of computer users communicate with each other through the same computer interface. And in contrast to cinema, where most "users" are able to "understand" cinematic language but not "speak" it (i.e., make films), all computer users can "speak" the language of the interface. They are active users of the interface, employing it to perform many tasks: send e-mail, organize files, run various applications, and so on.

[84–85] The incorporation of virtual camera controls into the very hardware of game consoles is truly a historic event. Directing the virtual camera becomes as important as controlling the hero's actions. . . . [In computer games], cinematic perception functions as the subject in its own right, suggesting the return of "New Vision" movement of the 1920s (Moholy-Nagy, Rodchenko, Vertov, and others), which foregrounded the new mobility of the photo and film camera, and made unconventional points of view a key part of its poetics.
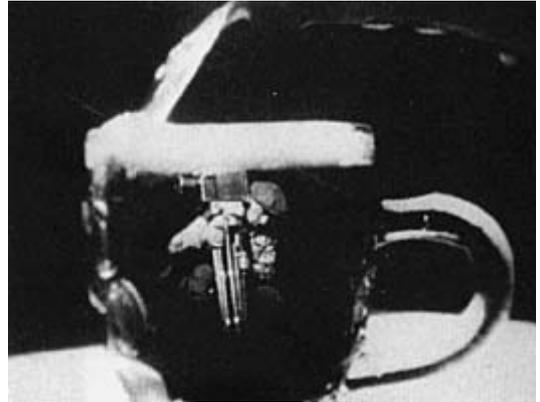
[148] Editing, or montage, is the key twentieth-century technology for creating fake realities. Theoreticians of cinema have distinguished between many kinds of montage, but for the purpose of sketching an archeology of the technologies of simulation that led to digital compositing, I will distinguish between two basic techniques. The first technique is temporal montage: Separate realities form consecutive moments in time. The second technique is montage within a shot. It is the opposite of the first: separate realities form contingent parts of a single image. . . . Examples include the . . . superimposition of images and multiple screens by avant-garde filmmakers in the 1920s (for instance, the superimposed images in Vertov's *Man with a Movie Camera* and the three-part screen in Abel Gance's 1927 *Napoléon*).
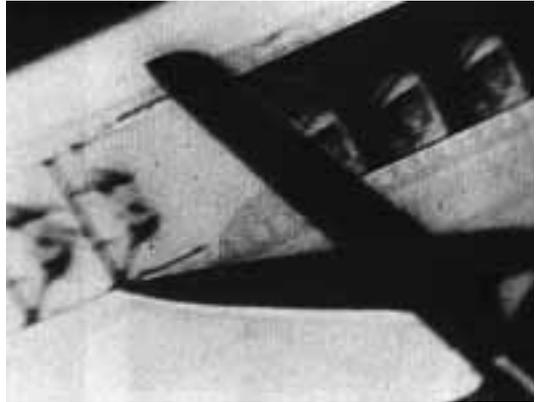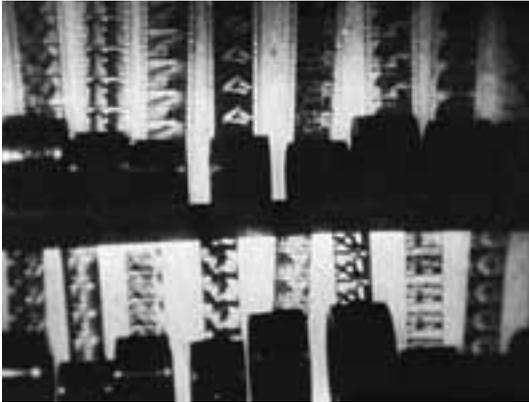
[149] As theorized by Vertov, film can overcome its indexical nature through montage, by presenting a viewer with objects that never existed in reality.
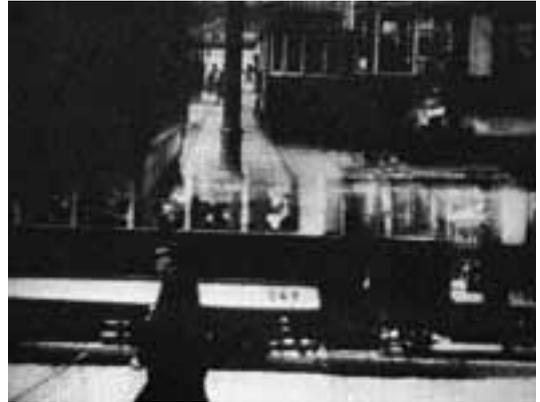
[158] Although digital compositing is usually used to create a seamless virtual space, this does not have to be its only goal. Borders between different worlds do not have to be erased; different spaces do not have to be matched in perspective, scale, and lighting; individual layers can retain their separate identities rather than being merged into a single space; different worlds can clash semantically rather than form a single universe.

[172] The cameraman, whom Benjamin compares to a surgeon, "penetrates deeply into its [reality's] web"; his camera zooms in order to "pry an object from its shell." Due to its new mobility, glorified in such films as *Man with a Movie Camera,* the camera can be anywhere, and with its superhuman vision it can obtain a close-up of any object. . . .

When photographs are brought together within a single magazine or newreel, both the scale and unique locations of the objects are discarded—thus answering the demand of mass society for a "universal equality of things."

[173–174] Modernization is accompanied by a disruption of physical space and matter, a process that privileges interchangeable and mobile signs over original objects and relations. . . . The concept of modernization fits equally well with Benjamin's account of film and Virilio's account of telecommunication, the latter but a more advanced stage in the continual process of turning objects into mobile signs. Before, different physical locations met within a single magazine spread or film newsreel; now they meet within a single electronic screen.
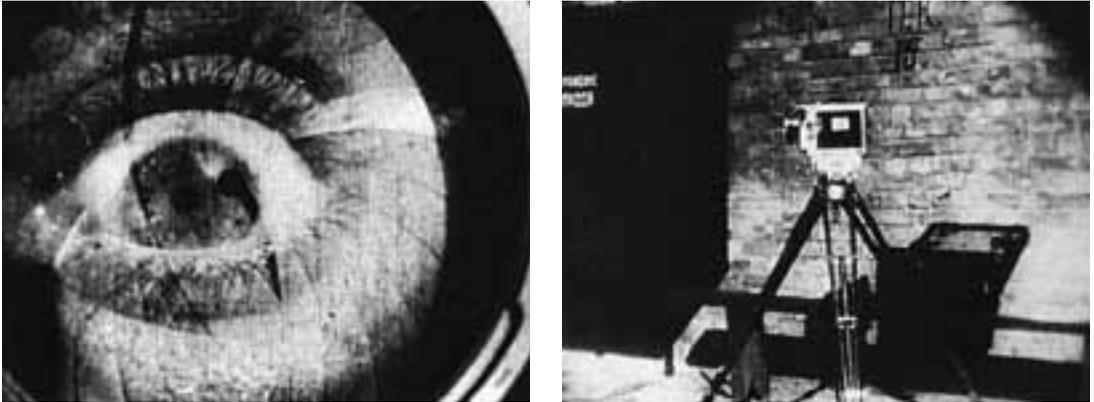
[202] Whose vision is it? It is the vision of a computer, a cyborg, an automatic missile. It is a realistic representation of human vision in the future, when it will be augmented by computer graphics and cleansed from noise. It is the vision of a digital grid. Synthetic computer-generated imagery is not an inferior representation of our reality, but a realistic representation of a different reality.

[239] Along with Greenaway, Dziga Vertov can be thought of as a major "database filmmaker" of the twentieth century. *Man with a Movie Camera* is perhaps the most important example of a database imagination in modern media art.

[241] Just as new media objects contain a hierarchy of levels (interface—content; operating system—application; Web page—HTML code; high-level programming language—assembly language—machine language), Vertov's film contains at least three levels. One level is the story of a camera-man shooting material for the film. The second level consists of shots of the audience watching the finished film in a movie theater. The third level is the film itself, which consists of footage recorded in Moscow, Kiev, and Riga, arranged according to the progression of a single day: waking up—work—leisure activities. If this third level is a text, the other two can be thought of as its metatexts.

[242] If a "normal" avant-garde film still proposes a coherent language different from the language of mainstream cinema, that is, a small set of techniques that are repeated, *Man with a Movie Camera* never arrives at anything like a well-defined language.

Rather, it proposes an untamed, and apparently endless, unwinding of techniques, or, to use contemporary language, "effects," as cinema's new way of speaking.

[243] "And this is why Vertov's film has particular relevance to new media. It proves that it is possible to turn "effects" into a meaningful artistic language. Why is it that in Witney's computer films and music videos effects are just effects, whereas in the hands of Vertov they acquire meaning? Because in Vertov's film they are motivated by a particular argument, which is that the new techniques of obtaining images and manipulating them, summed up by Vertov in his term "kino-eye," can be used to decode the world. As the film progresses, straight footage gives way to manipulated footage; newer techniques appear one after another, reaching a roller-coaster intensity by the film's end—a true orgy of cinematography. It is as though Vertov restages his discovery of the kino-eye for us, and along with him, we gradually realize the full range of possibilities offered by the camera. Vertov's goal is to seduce us into his way of seeing and thinking, to make us share his excitement, as he discovers a new language for film. This gradual process of discovery is film's main narrative, and it is told through a catalog of discoveries. Thus, in the hands of Vertov, the database, this normally static and "objective" form, becomes dynamic and subjective. More important, Vertov is able to achieve something that new media designers and artists still have to learn—how to merge database and narrative into a new form.

[262] If modern visual culture exemplified by MTV can be thought of as a Mannerist stage of cinema, its perfected techniques of cinematography, mise-en-scène and editing self-consciously displayed and paraded for its own sake, Waliczky's film presents an alternative response to cinema's classical age, which is now behind us. In this metafilm, the camera, part of cinema's apparatus, becomes the main character (and in this respect, we can connect *The Forest* to another metafilm, *Man with a Movie Camera*).

[275–276] . . . Vertov stands halfway between Baudelaire's flâneur and to-day's computer user: no longer just a pedestrian walking down a street, but not yet Gibson's data cowboy who zooms through pure data armed with data-mining algorithms. In his research on what can be called "kino-eye interface," Vertov systematically tried different ways to overcome what he thought were the limits of human vision. He mounted cameras on the roof of a building and a moving automobile; he slowed and sped up film speed; he superimposed a number of images together in time and space (temporal montage and montage within a shot). *Man with a Movie Camera* is not only a database of city life in the 1920s, a database of film techniques, and a data-base of new operations of visual epistemology, but also a database of new interface operations that together aim to go beyond simple human navigation through physical space.

[306–307] One general effect of the digital revolution is that avant-garde aesthetic strategies came to be embedded in the commands and interface metaphors of computer software. In short, the avant-garde became materialized in a computer. Digital cinema technology is a case in point. The avant-garde strategy of collage reemerged as the "cut-and-paste" command, the most basic operation one can perform on digital data. The idea of painting on film became embedded in paint functions of film-editing software. The avant-garde move to combine animation, printed texts, and live-action footage is repeated in the convergence of animation, title generation, paint, compositing, and editing systems into all-in-one packages.

[316] Cinema's birth from a loop form was reenacted at least once during its history. In one of the sequences of *Man with a Movie Camera,* Vertov shows us a cameraman standing in the back of a moving automobile. As he is being carried forward by the automobile, he cranks the handle of his camera. A loop, a repetition, created by the circular movement of the handle, gives birth to a progression of events—a very basic narrative that is also quintessentially modern—a camera moving through space recording whatever is in its way.

[317] Can the loop be a new narrative form appropriate for the computer age? It is relevant to recall that the loop gave birth not only to cinema but also to computer programming. Programming involves altering the linear flow of data through control structures, such as "if/then" and "repeat/while"; the loop is the most elementary of these control structures. . . . As the practice of computer programming illustrates, the loop and the sequential progression do not have to be considered mutually exclusive. A computer program progresses from start to end by executing a series of loops.
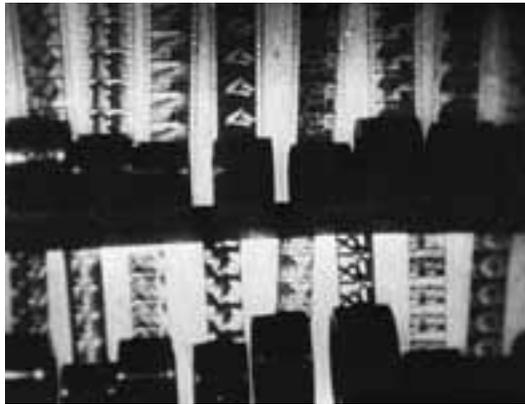
[322] Spatial montage represents an alternative to traditional cinematic temporal montage, replacing its traditional sequential mode with a spatial one. Ford's assembly line relied on the separation of the production process into sets of simple, repetitive, and sequential activities. The same principle made computer programming possible: A computer program breaks a task into a series of elemental operations to be executed one at a time. Cinema followed this logic of industrial production as well. It replaced all other modes of narration with a sequential narrative, an assembly line of shots that appear on the screen one at a time. This type of narrative turned out to be particularly incompatible with the spatial narrative that had played a prominent role in European visual culture for centuries.

[324] Since the development of the Xerox PARC Alto workstation, the Graphical User Interface (GUI) has used multiple windows. It would be logical to expect that cultural forms based on moving images will eventually adopt similar conventions. . . . We may expect that computer-based cinema will eventually go in the same direction—especially once the limitations of communication bandwidth disappear while the resolution of displays significantly increases, from the typical 1–2K in 2000 to 4K, 8K, or beyond. I believe that the next generation of cinema—*broadband* or *macrocinema*—will add multiple windows to its language.

[326–327] If the Human Computer Interface (HCI) is an interface to computer data, and a book is an interface to text, cinema can be thought of as an interface to events taking place in 3-D space. Just as painting before it, cinema presents us with familiar images of visible reality—interiors, landscapes, human characters—arranged within a rectangular frame. The aesthetics of these arrangements ranges from extreme scarcity to extreme density. . . . It would take only a small leap to relate this density of "pictorial displays" to the density of contemporary information displays such as Web portals, which may contain a few dozen hyperlinked elements, or the interfaces of popular software packages, which similarly present the user with dozens of commands at once.