Going Digital: **The Emergence of Digital Video Processing and Effects in Artists' Video.**

The digital revolution has gradually and relentlessly eroded the distinctions between electronic and film-based moving image work made by artists. The convergence of computer manipulated imagery from a diverse range of sources- photographic, filmic and electronic, together with the development of image display technologies such as the plasma screen and high-resolution data projection has rendered the distinction between previously distinct media increasingly obsolete and largely irrelevant for most, if not all artists who work with video. This convergence process, which began in the early 1970's is now all but complete, but the aesthetic and cultural implications are still in the process of being assimilated, identified and articulated.

As Gene Youngblood argues in his essay "Cinema and the Code", in video the frame is not an 'object' as it is in film, but a time segment of a continuous signal which creates the possibility of a syntax based on transformation rather than transition. Using electronic imaging tools it is possible to create a moving image work where each image metamorphoses into the next. Although this was prefigured in hand

drawn animation film, Youngblood points out that once the electronic image is produced digitally, it becomes possible to produce a *photorea* metamorphosis in which photographically 'real' objects can be transformed:

> **It is possible digitally because the code allows us to combine the subjectivity of painting, the objectivity of photography and the gravity-free motion of hand drawn animation.**

Youngblood suggests that via the 'code' (i.e. digital image manipulation of the electronically produced photographic image) perspective becomes a temporal as well as a spatial phenomenon. This technology enables the removal of the image from the frame, treating it as an object, or image-plane. This allows the creation of what Youngblood calls 'parallel event streams', which enable new semiotic strategies. As an example, Youngblood cites the possibility of images of past or future events sharing the frame with a current event, contrasting this with mechanical cinema's restrictive temporal perspective:

There is no temporal eloquence in film. But digital video suggests the possibility of establishing one image plane as 'present' with other time-frames visible simultaneously within the frame. This would extend the possibility of transfiguration (metamorphosis) into a narrative space composed of layers of time, either as moving or still images.

In this paper, I am attempting to discuss some aspects of the shift between analogue and digital, identifying a few of the video artists, their practice and the imaging tools they have used or developed, and their impact on fine art discourse. I am very aware that this is the starting point for a much more comprehensive survey of this period of transition, and that there are many artists who I do not mention who have made a significant contribution to this story. Consider this a brief survey and a tentative attempt to summarize an important and crucial period in the development of artists' video.

Stephen Beck and the Direct Video Synthesizer

In 1968, whilst experimenting with the sonic generation of oscilloscope images, American video artist/engineer Stephen Beck (1950, USA) began seeking more precise methods of controlling light. His first

attempt to build a device was the "Number 0 Video Synthesizer", used in collaborative performances with electronic musician Salvatore Martirano.

Beck completed his "Direct Video Synthesizer" during a period as Artist-in-Residence at the National Center for Experiments in Television (NCET) in San Francisco in 1970 using the new instrument to produce a series of tapes called *Electronic Notebooks*. Intended as both documentation of the technical research and works in their own right, these tapes were made in collaboration with other artists and composers including Don Hallock, Bill Roarty, Willard Rosenquist, Bill Gwin and Warner Jepson.

1. Still image of the Direct Video Synthesizer

The Direct Video Synthesizer, intended as a performance instrument, was designed to produce video images without a camera. Beck saw his machine as an "electronic sculpting device" designed to generate four key aspects of the video image- colour, form, motion and texture. In a subsequent version, Beck extended the scope of the device to include circuits to generate the elemental images of air, fire and water. Beck's stated concern was to open up television as an expressive medium

and to go beyond the manipulation of the conventional camera image to produce non-objective imagery.

Beck designed and built his fully digital "Video Weaver" in 1975, inspired by the analogy between weaving and the construction of the television image. The circuits for Video Weaver were incorporated into his "Direct Video Synthesizer" and used to produce a series of tapes called *Video Weavings* (1975).

Screen extract from Video Weavings

Richard Monkhouse and the EMS Spectron

British artist/engineer Richard Monkhouse (1950, UK) a self-taught electronics engineer joined EMS Ltd. (Electronic Music Studios) a London-based company specialized in the manufacture of sound synthesizers in 1973. Monkhouse was initially involved with the design of a video display component for a new audio instrument:

Nobody else at EMS had much expertise in video and I was, if you like, a promising newcomer/ slave. I was given the job of designing some video sync. circuitry. So I got a colour video monitor and a sync. circuit and I started to plug direct RGB video signals from the digital timing circuit into the colour monitor. I suddenly realized how amazing pure colour video imagery actually is. In fact I got so excited by the pure colours that I was getting that I damaged the Trinitron monitor feeding in stronger and stronger colours, I heated up and bent the masks!

Intrigued by the visual quality and purity of the colour images he had been able to produce, Monkhouse developed a prototype video instrument which went much further than simply generating coloured stripes and squares: "I thought- the video synth, what a concept. I've never heard of that before: Let me see if I can make one."

Monkhouse's prototype, initially named the "Spectre", generated considerable interest at EMS, and was soon taken up by the company director Peter Zinovieff. The machine was capable of taking a

monochrome video camera feed, colourizing the image to eight levels with digital control of colour brightness. After further demonstrations in the UK, a colour encoder was added, enabling the output of the Spectre to be recordable.

Still Image: Spectre Prototype, 1974

Although the Spectre was a novel idea with an untested market, EMS manufactured and actively promoted the instrument, making it available for £4,500 in 1974.

Still Image: Spectron (Production Model) , 1975

In the December 1974 issue of *Video and Audio-Visual Review*, a full colour image produced via the Spectre appeared on the cover, and the magazine contained a substantial article written by Monkhouse entitled "The Moving Art of Video Graphics- or How to Drive a Spectre". Comprehensively illustrated with images and diagrams, this six page article presented in considerable detail the functions and operations of the prototype Spectre. Monkhouse also outlined the basic philosophy and approach behind the design of his instrument:

Up to now there has been little work on direct video synthesis- most effects units (such as wipe generators, chromakey units, and colourizers) have been kept separate, and only used directly to treat signals that originate from a conventional camera scene set up. In our Spectre video synthesizer, a different concept has been used; rather than produce another special effects unit I have endeavored to group together units with a highly perceptual impact in a way that gives total freedom to combine shapes and colours logically, and in a very general way.

The French video artist Robert Cahen systematically explored the capabilities of the Spectron in a series of videotapes he made in the late 1970s and early 80's whilst working at the INA (Institut National de l' Audiovisuel) in Paris, producing works such as *Sans Titre* (1977), *L'Eclipse* (1979), *Trompe- l'oeil* (1979) and *Nuage noir* (1982). Cahen was especially interested in the Spectron's capacity to generate an electronic weave of imagery to produce a kind of "curtain that gives a craving to see what is hidden behind." In fact, at this time Cahen was

so entranced with the machine and its capabilities that he was dubbed "Spectroman" by his colleagues at the INA!

Screen Extract from Trompe l'oeil (1979)

The Vasulkas: Dialoguing with Tools

Steina and Woody Vasulka are two of the most prolific and significant video artists to have experimented with image manipulation technology in the United States. Working exclusively with video and sound since the late 1960s, the Vasulkas have taken a systematic and rigorously formal approach, evolving a working method characterized by an interactive dialogue between the artist and electronic imaging technology, in a process of exploration which they have termed "dialogues with tools".

Over a period that continues up to the present, the Vasulkas have explored the potential for video via a comprehensive body of work which seeks to provide the foundation for a new electronic language and to explore and define the frontiers of digital and televisual space. In a recent interview, Woody explained his early fascination with the electronic image and the political implications of his decision to move from film to video in the late 1960s:

The idea that you can take a picture and put it through a wire and send it to another place- you can broadcast from one place to another- this idea of an ultimate transcendence- magic- a signal that is organized to contain an image. This was no great decision, it was clear to me that there was a utopian notion to this, it was a radical system and so there was no question of deciding that this was it. Also I was not very successful in making films- I had nothing to say with film. This new medium was open and available and just let you work without a subject.

The Vasulkas characterize their early approach to video as primarily "didactic", for many years working with the materiality of the video image towards the development of a 'vocabulary' of electronic procedures unique to the construction of a "time/energy object".

They became engaged in the development of a new digital tool to extend the scope and nature of their video work at the end of the

1970's. The initial design and prototyping was begun by Don Mc Arthur with programming by Walter Wright, but the final version of what was to become the "Digital Image Articulator", was developed by Jeffrey Schier, a student at the New York State University in Buffalo in collaboration with Woody.

Still image of Woody constructing the Digital Image Articulator (1980)

The Digital Image Articulator was capable of digitizing two video inputs, and performing a series of operations based on functions derived from the dedicated computer system's "Arithmetic Logic Unit". The numerical codes of the operating logic function are combined in different but mathematically predictable ways, and these combinations correspond to the video system's inner structure and also constitute what Woody has referred to as "syntax".

One of the first videotapes made with the Digital Image Articulator was *Artifacts* (1980), a work that clearly demonstrates the Vasulkas' on going dialogue with digital technology. For Woody *Artifacts* is a "collection of images initiated by basic algorithmical procedures, to verify the functional operation of a newly created tool." He extends this

idea by making reference to the title of the work, to the spirit in which it was made, and even to the most appropriate mode in which to view it:

> **By artifacts, I mean that I have to share the creative process with the machine. It is responsible for too may elements in this work. These images come to you as they came to me - in a spirit of exploration.**

Video Sequence: Screen Extract from Artifacts (1980)

Accessible Digital Effects

By the mid 1980s many video artists were able to gain access to post-production facilities that enabled complex manipulation and control of the electronic image. Television workshops in a number of countries including France, Canada, the UK, Germany, and the Netherlands but most significantly, in the USA, had provided a few artists limited access to comprehensive production facilities in the late 1970s. Additionally an important breakthrough occurred about the middle of the 1980s as a result of technological advances in consumer electronics and developments in computing. Alongside the rise of the new domestic and industrial video formats such as VHS, Betamax and U-matic, image processing equipment including time-base correctors, frame

stores, video mixing desks, image keyers, colourizers and many other ancillary devices became available at costs that were within the reach of artists' collectives, funded workshops, fine art departments of educational institutions and even individual artist/producers. As this equipment became available to purchase at comparatively low cost, access to individual artists who wished to hire these facilities also became more commonplace.

Except for the pioneering experimental devices constructed by artists for the development of their own work, during the late 1970's and early 1980s digital image-processing equipment was primarily only available at the broadcast level. Image processing devices such as time-base correctors, digital frame stores, and effects machines such as the Quantel "Paintbox" and Ampex "ADO" were prohibitively expensive.

Still Images of Quantel Paintbox and Ampex ADO

Whilst these devices enabled and facilitated very complex control over the electronic image, they were expensive specialist tools requiring significant training and experience and were mostly restricted to qualified operator/editors employed by facilities houses or broadcast companies. Artists wishing to experiment with the creative and

communicative potential of this level of image control were severely limited by cost, access and experience. Production costs for video work using this type of technology was high and the opportunities to gain this level of production funding few and far between.

By the mid 1980s however a new generation of low-cost digital equipment became more generally available. Digital frame stores such as those made the UK-based CEL made it possible to produce true "freeze frames", time-base correctors and synchronizers enabled artists working with video to edit, mix video sequences from multiple tape sources and picture editing effects such as "picture-in-picture", whilst chroma-key devices gave artists the ability to selectively combine imagery from a variety of tape and video sources.

Still image of CEL P147 Frame Store

This explosion of low-cost complex electronic effects naturally led to a period of enthusiastic over-indulgence, and certainly many videotapes produced in the mid-to-late 1980s suffer from visual overkill and harshly processed vacuousness. Some artists explored this tendency to directly critique and question the cultural impact of the so-called information explosion.

Jeremy Welsh (1954, UK) made a number of videotapes addressing
and challenging the relationship between mediation and reality, notably
I.O.D. (1984) and *Reflecting* (1986) in which he produced complex and
accomplished collages of TV station logos and indents, advertisements
and electronically generated captions to deliberately bombard and
saturate the viewer with media imagery.

Screen Extract from "IOD" (1984)

Peter Callas (1952, Australia) explored the creative potential of the
Fairlight CVI, a computer graphics instrument in a number of
videotapes and installations produced between 1985 and 1990,
including *Night's High Noon* (1988), *Karkador* (1986), *Neo Geo* (1989)
and *The Fujiama Project* (1990).

Still Image of Fairlight CVI

In this series of works, grouped by Callas under the general title
"Technology as Territory", the artist was engaged in a reworking of
"found" images, extracting them from their original context, re-drawing
and animating them in order to translate and recontextualize them into

an "emblem", re-presenting these images within a new context of his own making.

> *The layering or drawing techniques available to artists through computer graphics devices free them from having to use a viewfinder as a framing device…in computer devices images (as ideas) can be retrieved and recombined at a moments notice. In this process something intangible, though incomprehensible, is made from the combination or intersection of two tangible properties.*

Screen Extract from Neo Geo

UK based artists such as Clive Gillman and Lei Cox began to explore the potential of electronic processing as it crossed the digital threshold. Clive Gillman's (1960, UK) *NLV* (Non Linear Video) (1989-1990) was an on-going series of visually inventive short works which featured a complex layering of analogue images using digital post-production techniques. For Gillman the *NLV* series represented a significant shift from his previous single screen video tape work of the early 1980s

towards a more non-linear and interactive approach that he developed with subsequent installation work such as *Losing* (1991) a multi-channel video installation comprising of eleven monitors, a desk-top computer and a video projector.

Screen Extract from NVL 1

Lei Cox (1965, UK) explored the potential of electronic imaging techniques to produce hybrid images through electronic and digital collage and animation techniques, deliberately avoiding narrative sequences in favour of endlessly repeating fragments often intended to be shown alongside more traditional paintings, sculpture or photographic prints. In tapes such as *Lighthead* (1987) *Torso* (1988), and *Lei Can Fly* (1988), he created a series of disturbing and humorous short tapes that reconfigured the human form in impossible and improbable ways.

Still from The Sufferance (1993)

In his subsequent large-scale works such as *Magnification Maximus* (1991) and *The Sufferance* (1993) Cox continued working with digital imaging techniques to create hybridized creatures within fantastical

landscape settings that the artist characterized as large-scale "video paintings".

From Analogue to Digital

My own experience of this image processing revolution can serve as an example. Working with analogue image processing and recording the output onto the U-matic (3/4 inch) tape format from 1978, my use of the Videokalos Image Processor developed in the late 1970s by British video artist Peter Donebauer in collaboration with Richard Monkhouse, enabled a degree of real time control over the colour, brightness and contrast of the video image .

Still image of Videokalos IMP

Among other facilities, the Videokalos IMP provided me with "genlock", so I could synchronize a single video tape source with a monochrome or colour video camera, for mixing and keying. Using this kind of image processing technology, I was restricted to mixing images using a process known as rescanning- literally pointing my video camera at a video monitor displaying the source material. In this period I worked initially with a black and white (portapak) source to produce single screen works including *Horizontal & Vertical* (1978) and *The Distracted*

Driver (1980). I set up my first studio in 1980-81 around a pair of U-matic edit decks and from 1982 I worked with a portable U-matic recorder and colour camera in conjunction with the Videokalos, to make single screen videotapes such as *The Room with a View* (1982) and *Time-Traveling/A True Story* (1983).

Still image from Room With a View (1982)

With the introduction of a CEL digital frame store and access to a GML twin TBC in 1985-86, my effects repertoire was considerably enhanced. I was then able to mix multiple videotape sources, produce video frame grabs (providing an alternative image-sequencing effect which resembled slow motion) and perform image "flips" (making mirror images of video sequences).

Still image of GML twin TBC

New single screen tape work in this period included the definitive versions of my 1985-87 work *The Stream* and *An Imaginary Landscape* (1986), both of which made extensive use of split screen effects, image flips, frame grabs and digital pixilation, and accomplished by mixing multiple video tape sources. Not only did these new image effects

extend the visual complexity of my work at this time, they also opened up my ideas to embrace new themes and ideas, particularly those related to the nature of electronic imagery and its potential relationship to visual perception and the flow of thought.

Screen Extract from An imaginary Landscape (1986)

This new video work and the issues it raised for me about the role of the spectator in decoding and reading the work led directly to an abandoning of the single screen video format after 1988. It initiated a new phase leading to the development of a series of participatory multi-monitor installation and sculptural video works during the 1990's including *Eau d'artifice* (1989-90), *Streamline* (1991-92), *Cross-Currents* (1993), *Perpetual Motion* (1994), *Vortex* (1995) and *Mind's Eye* (1997).

Still Image of Perpetual Motion (1994)

These installation works made increasing use of digital imaging, and by the mid-1990s my work was completely digital at the post-production stage, using analogue videotape purely as the exhibition display format. For example, the images for *Perpetual Motion* (1994) were

composed on an Apple Mac Quadra 840AV using Macromedia "Director" software output to videotape.

Still image of Apple Mac Quadra 840 AV

Non-linearity and Video

The diminishing costs and increased processing power of home computers led directly to the development of image-processing computer software packages. Adobe "Photoshop" (1990) and similar so-called "digital darkroom" techniques transformed the potential of the photographic image and in many ways provided a model for later moving image-processing tools such as Macromedia's "Director", and Adobe "Premiere", which provided video artists with so-called "non-linear" editing techniques very similar to those familiar to film editors. Prior to the introduction of computer editing it had been necessary to laboriously assemble video images and sequences in a particular order which was then fixed, as it was necessary to electronically re-record from the original source tapes in 'real' time in order to construct a "master" tape. Any subsequent changes to the order or the length of the sequences on the master required an editor to re-record the images from the point of the change onwards. So, for example, if it were necessary to delete, shorten, replace or move a particular

sequence from the edited master, all the subsequent sequences from the source tapes would have to be re-recorded onto the master tape. Computerized non-linear editing on the other hand, allowed the editor to simply delete or modify a sequence and all the subsequent sequences would automatically "ripple" forwards or backwards as required to accommodate the change, since all the video sequences, once digitized, as well as the data associated with the editing decisions and the frame addresses could be stored on the computer's hard drive. The order and image treatments (freeze frames, colouring, a/b rolls, image keying, etc.) of the source sequences remained latent and the final edited version of the work was only fixed once the computer output was recorded onto tape. This was a profound change to the way that artists thought about editing and organizing their images and the technological transformation of video editing and image-processing has had a major impact both to the accessibility of video editing and the kind of work that artists made.

Although this kind of non-linear manipulation provides the artist with the potential for a far greater control over the ordering and construction of his or her work, it does not provide the viewer with similar enhanced possibilities. The film and video artist Malcolm Le Grice (1940, UK) has written about the issues raised by the emergence of the non-linear and

its implications for film and video from ideas that have emerged from his own fine art practice including a sustained period of working with accessible digital technology.

Still image of Spectrum

In works such as *Arbitrary Logic* (1986), *Sketches for a Sensual Philosophy* (1988) and *Digital Still Life* (1989), Le Grice worked with inexpensive home computers (initially the Sinclair Spectrum and the Atari) to explore the potential of the digital and its implications for moving image within a fine art context.

Still image of Atari

Screen extract from *Arbitrary Logic* (1986)

In his recent writings he stresses his primary activity as an artist and often provides readers with what he calls a "health warning"- pointing out that his theoretical work is based on the analysis of his own work and its relationship to others working within similar cultural and technological contexts. In his 1997 essay "A Non-linear Tradition-Experimental Film and Digital Cinema", Le Grice identifies some of the

fundamental issues and questions raised by the concept of on-linearity and its implications for artists working with the moving image. The central question relates to the relationship between non-linearity and narrative, especially with respect to the viewer's experience, which seems to be inevitably tied into a sequential unfolding of time.

Le Grice identifies two potential categories of work from the history of experimental film and video which attempt to break with the narrative tradition- the abstract non-representational works of film and video-makers who drew on the musical and painterly tradition in fine art discourse, and those who have sought to make a conscious break with the narrative tradition, even though they include images produced through photographic representation. Le Grice traces the evolution of a pure cinematic mode of discourse asserting that the viewer's experience of a moving image work is inevitably linear in nature, given the apparent continuity of consciousness and therefore it is necessary to accept the inevitability of perceptual linearity. For Le Grice the problematic issue behind narrativity is the hidden authoritarian ideological position of the dominant cultural form:

> *Even if the content is transgressive or anarchic,*
> *the form locks the audience into a consequence*

which unifies the subject impotently with and within the narrative. It is the linear coherence of the narrative and its conclusion which represses the subject (viewer) by implicitly suppressing the complexity of the viewer's own construction of meaning. Transmitted as a culturally validated convention, narrative subsequently becomes a model by which experience is interpreted, becomes a filter for the life experience outside the cinematic.

Interactive Video

Aside from the indirect approach to the development of non-narrative forms which have contributed to the evolution of the non-linear, artists have explored the potential of non-linearity provided by technological developments in computer hardware and software.

Still images of *The Legible City* (1988-91)

In *The Legible City* (1988-91) by Jeffrey Shaw (1944, Australia) with Dirk Groeneveld, viewers seated on a fixed bicycle were able to engage in an interactive image/text tour through the central sections of

three urban centres: Manhattan (1988-89), Amsterdam (1990) and Karlsrule (1991). In all three versions of this work projected images of computer-generated texts responded to the direction of the bicycle handlebars and the speed of the cyclist-spectator, presenting them with a personalized journey through computer-generated three dimensional textual statements and stories associated with the different cities.

In each version of the installation the image-texts presented the viewer with a complex experience which fused the actual and the virtual, the physical experience of peddling and manoeuvring the bicycle and the reading of the transforming texts as she/he moves through simulated image space. The work suggested and explored the potential of non-linear interactive installation work providing new and complex perceptual experiences which extended well beyond mere spectacle:

> *….the presence of writing makes it clear that a city is not only a geographical agglomeration of architecture, but also an immaterial pattern of experiences. The content of the texts, which can be perceived, only when the viewer performs the activities of cycling and reading, reveals that the*

> *inhabitant's history plays an important role in shaping the identity of a place. The effort it takes the viewer to synthesize the slowly approaching, extremely foreshortened letters into phrases while cycling gives evidence of the fact that, in spite of the immateriality of the virtual city, a new reality is being formed in the viewer's mind.*

Another Australian artist, Simon Biggs (1957, Australia), based in the UK since 1986, has also explored the potential of interactivity in a number of complex video installations. *Alchemy* (1990) a twin channel interactive laser disk installation, is a digitally illuminated "book of hours" comprising of twenty-four electronic "pages" that a viewer could explore sequentially.

Still Image: *Alchemy* (1990)

The installation was physically constructed from two video monitors turned vertically and arranged to form an open book, the interactivity of the software programming allowing the visitor to "turn" the pages with a hand gesture. The similarity with an ancient illuminated manuscript was extended to the style and visual power of the imagery but with the

added dimension of animated movement. The digital pages of *Alchemy* were inhabited by a host of animated demons, angles and mythical beasts to reference a contemporary parallel with genetic and robotic research using computer-aided technologies.

Still of Commodore Amiga

Susan Collins (1964, UK), initially working with single screen video, made *Going for Goldfish* (with Julie Meyers) (1990) and *Coming Attractions* (1991) using a Commodore Amiga computer with "Deluxe Paint III" graphic software, but soon began to explore the potential for interactivity offered by more sophisticated computer systems. Her earliest public "site-specific" installation, *Introductory Exchanges* (1993), sited in the Woolwich Foot tunnel, which runs under the River Thames, was aimed to "engage viewers in an inquiry or reinterpretation of their role within specific and everyday contexts."

Still of "Pedestrian Gestures"

In subsequent commissioned installations such as *Handle with Care* (1993) and *Pedestrian Gestures* (1994) Collins developed her techniques to enable a wider array of image and sound responses to

be triggered via audience interactions to create a situation in which the viewer becomes an often-unwitting collaborator/participant. Increasingly Collins has developed an approach that allows for the possibility of individual narrative routes determined by the action and direction of the viewer as s/he negotiates the work.

In the last decade of the 20th century, artists working with video increasingly began to explore the potential relationships between virtual space and interactivity.

In retrospect analogue video can now be seen to be intermediate technology, the electronic environment of the "videosphere" and televisual space heralding the more profoundly radical potential of the digital age, providing complex levels of interactivity, immersive virtual reality and ultra high resolution large screen projections on tap to any environment or venue.

Stills from "Sonata" (1993)

Pioneering video works such as Grahame Weinbren's *Sonata* (1993); *Passage Sets/One Pulls Pivots at the Tip of the Tongue* (1994-95) by Bill Seaman, Toshio Iwai's, *Piano-As Image Media* (1995) and Gary

Hill's *Tall Ships* (1992) began the process of opening up new territories by combining aspects of earlier forms including film, literature, music and sculpture with objects and images presented within virtual space.

Still from "Tall Ships" (1992)

The participatory project that has evolved from the "Expanded Cinema" of the 1970's through the video sculpture of the 1980s and early interactive experiments of the 1990's has been considerably extended via the potential interplay and dialogue between viewer, artist and digital imaging technology. The transition from analogue to digital explored through the works of video artists during the period under consideration has formed a significant foundation for the future of fine art discourse.

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