Interactive Film: The Computer as Medium

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Abstract. The focus of this paper is to attempt to define some key qualities of what will be described as interactive film. Interactive film is the description of user interface experience, where the screen surface is seen as a continuous piece of film altered by data interactions, which are but edits to the film observed on screen. As such computer screen representations as a user experience are seen as the convergence of the medium of film with computer databases. The paper also examines the history of two other media, namely the book and painting over the last five hundred years as examples to understand how media – its form – and its content – the message behave, leading to interactive film.

Keywords: Science-fiction and DUXU, Interface Design and Convergence.

1   The Nature of Media

McLuhan's famous dictum, the medium is the message [1]– guides this paper and its content. The statement, when paraphrased, may be understood as - it is the nature of a medium that decides what messages can be transmitted; this underlines the view that the form of the technology, its nature and characteristics, dictates the content. The focus here is to understand the computer as a medium- its form, supporting the greater ambition of defining its messages - its content.

A medium - that which is in between - refers to material and non-material processes for transmitting messages [2] Media forms include text, film, television and radio. A medium, of which media is the plural, is defined as 'something in between'. A medium then, is that which carries a message between the maker / sender and the receiver of the information, enabling communication. The air that carries our verbal utterances is a medium; a clay tablet with impressions marking the number of head of cattle is a medium. Media are communication technologies with a long history and are used to create inventory and portability of information through the senses, primarily of what is seen and heard, but this now also includes touch. A medium, from which the plural media is derived, simply means that which is in between, or that which is in the middle of two communicating individuals. In this way, paper is a medium carrying the message of written words to from the writer to the reader. Computers have a multimedia dimension in that many media, often interlinked, are present in the one machine [3].

2   The Message of the Printed Book: The Rise of the Individual

It is worthwhile examining the last great period of new media invention – what is now very old media - and its effects upon society as a result of the messages that these media conveyed – towards building a model of medium and it message in computing. In European history, it was the invention of the mechanical printing press by Gutenberg in 1450 [4] that caused a revolution in individual perception giving rise to what we now know as the *individual*. The book, previously a hand-made object and therefore rare, was restricted knowledge and poorly dissemination. With the *advent* of mechanical cast moveable type, books become more readily available and by 1623 the publication of Shakespeare's first folio copies occurred some of which still exist to this day [5]. This ready, privately available information gives rise to the individual because it is the individual who can think and interpret for themselves the message of the author now having access to an otherwise absent medium. This singles a departure from the rigid preceding hierarchical feudal order and as a set of values is known as *humanism* [6].

Similarly, Machievelli's work *The Prince* [7] which highlights the rise of the individual, a person capable of subterfuge and able to scale the previously unassailable walls of medieval order. The Machievellian individual has a strong and complex inner life, a psychological dimension that is self-willed and self-driven. This is the dark side of Renaissance man; this is the other side of humanism, where humanism as defined through Thomas More's *Utopia* [8] showed a regard and consideration for the plight of the individual with early projections of social planning. The emphasis is on the individual mind and what it can produce with the information of the new media, the book. The humanist, both good and bad, emphasises the creative ability of the individual, which is still a dominant from a western perspective, and manifests in inventions like the *personal computer* (PC).

Further, Shakespeare's plays hold within them the archetypes of this new-self willed, mobile reading and writing individual. A number of his tragic characters fail in part because of their inability to understand and operate the new media of the day: the book. Macbeth, who does both read and write in the play [9], fails to *interpret* the riddle of the witches showing himself to be a poor reader. It is a tragic irony that this man who can both read and write is hasty and unreflective when listening to the prophecy of the witches, believing in a single interpretation of their message - that he cannot fail in his endeavours - propelling him into a sequence of murders which do not secure him his desired crown. Hamlet, on the other hand thinks extensively about the philosophical outcomes of life, with stage directions showing him reading a book [10].   But his sophisticated thoughts of life and death as typified in his soliloquy 'To be or not to be….' [11] hinder him, as he fails then to secure a successful revenge of his father's murder; Hamlet is an over-reader, unable to balance thought and action, not understanding how the new media of his day should fit into his world and serve his political ambitions. Whilst in *Julius Caesar* [12] it is Mark Antony, an ancient orator, who holds and unopened scroll – very, very old media – on which Caesar's will is written. He holds this and speaks to the crowd, emphasising the murdered Cesar's generosity but uses the presence of the unread document dramatically to reinforce a promise and thus swings

political favour in his direction finally cornering his Brutus and the fellow murderers. Shakespeare has shown his audiences how the new media of the day can be used successfully or unsuccessfully to support individual ambition.

3   Painting: A Medium with a Message That Reflects Upon the Medium

Closer to the age of computing in the mid twentieth century, painting has offered intelligent discourse on how we see and experience the world. Painting is an innovative medium, creating new ways of seeing where the old vision is replaced by the new. That old media are absorbed by new media as McLuhan has stated [13], is also true for the aesthetics of painting. What follows is a brief commentary of significant art over the last century with an initial reference to the Renaissance, commenting on the role that machines have in the production of art and in human perception potentially offering a model for interactive film and computing.

To then jump some four hundred years we see in the work of Picasso's and Braques Cubism [14] a world dramatically changed by the new machines of the early 20th Century. At this time, a time when industrialisation is in full swing with the motor car, electricity, flight and the growth of massive industrialised cities, human experience was forced into a speed and complexity of experience that was entirely novel. What Cubism offered was an instantaneous view of the complexity of human experience; life was now not a matter of a single beautiful aesthetic view to be painted, but rather a clash of different sometimes jarring and conflicting views into one. At the same time what Cubism was resonating with the new science of psychology, which both Freud and Jung were evolving at the time, the interiority of the individual. Cubism also resonated with new

Pablo Picasso - Weeping Woman 1937
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Fig. 1. Picasso *Weeping woman,* 1937 (Google image http://images.google.com/images)

viewpoints in science, namely Einstein's theory of Relativity, supporting the notion that knowledge evolved from the single privileged observer was a limited view of how reality was constructed. Cubism in this way, was a medium with a new message and expressing the new complexity of the individual (see Figure 1).

Painting, a light based medium, is however subverted by photography [15]. The process of manual mimetic depiction is suddenly automated and a window on the life as reality is made. The new image making of photography made redundant the craft of drawing and realistic painting obsolete. Photography spread rapidly and became popular and was made available to a mass consumer public. The new here had also absorbed the old medium. The same with magnetically recorded sound by Edison; the translation of the word into text in one swoop is made redundant. When sound and light converge in the form of film [16], with the understanding that successive photographic frames delivers an illusion of movement, just as perspective delivered the illusion of space, then the process of mimesis, or reproducing reality as we see it, is complete. At this time also Duchamp, with the exhibition of the pissoir at a Paris exhibition in 1917 [17] and giving it the title *Fountain,* he was announcing the redundancy of the old media in art. The pissoir, an ironic and cheeky object to submit as an art object, is of course industrially made by machine after an original form has been made by a single craftsman. Duchamp was commenting wryly on the domination of the machine, that the artisan, the maker by hand was being made redundant by industrial processes.

Fig. 2. Fountain 1917, Duchamp. Source: Wikipedia.

It was Warhol, in the 20th Century, however who suggested that not all was lost in the land of art as a result of machine made art. Instead of decrying the loss of painting, he invented a visual aesthetic in his work, the aesthetic of mass produced images. Warhol emphasised that *repetition* was an aesthetic principle, which indeed it is. In

his work of Elvis Presley pulling a gun (see Figure 3), it is the multiple representations of the drama of pulling a gun – an extreme act – that highlights the fact that the message is change by the repetition, its impact lessened and modified by the machine reproduction. Whilst in his multiple works of Marilyn Munroe, the changes in chromatic key of the woman most popularly known in the mass media of the day as the most beautiful of all women, indicated that the new palette and brush of the artist was push button colour selection, replacing brush and canvas (see Figure 4).
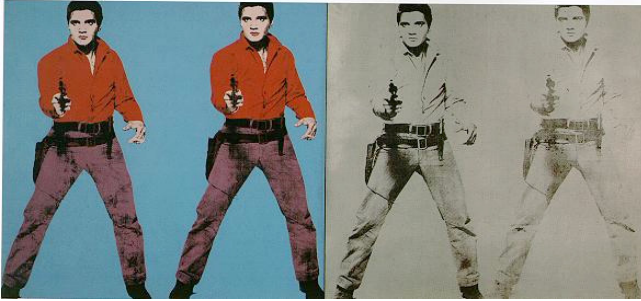

Fig. 3. Presley Gun: Warhol. Source: Google images.

Fig. 4. Monroe: Warhol Source: Google images

Richter then follows Warhol, a popular contemporary artist of the late 20th and early 21st century. His approach was to develop an aesthetic of an image-producing machine that malfunctions, a machine that like Warhol's produces images but produces not as designed or ordered. The work might be the refuse of any common colour-copying machine in any office in the world. His work is on canvas and is hand made, creating an irony from the early departures of Duchamp (see Figure 4).

Fig. 5. Image Richter 'Abstraktes Bild (Source http://www.telegraph.co.uk/culture/art/art-news/)

In summary, in the artworks we see a strong and well-developed habit of artists using their medium in ways that often reviews and comments upon the limits and potentials of the medium. The artworks discussed show an understanding of how a medium may be superseded by a newer, more technically or intellectually evolved medium. Many of the artists discussed addressed the problem by repositioning or re-tasking the old media meaning that new perspectives on the new tools appeared. In short, they asked what the medium was in its new form and shaped messages to that medium accordingly.

4   The Qualities of Interactive Film

The approach here in examining medium and message is not so much philosophical as material: how does the medium perform and what can it say taking into account the impact of media and their messages as evidenced in past epochs? A single distinction is made here, in that the depiction of on-screen images by computer systems will be understood here as *interactive film*: film, because of the pervasive real and animated images; the motion; and interactive, because these images change with the addition of any data through exchange of information with data bases.

To look at any personal computer or smartphone it is in plain view that the computer is a machine that makes other machines [18]; it absorbs older forms of media be it text, images, sound and simulates their real functions virtually. The notion is quite useful and in part is responsible for the difficulty in being able to define its characteristics as a medium making messages because of the scale and complexity. The singular, object associated nature of media and media machines is historical and physical; printing presses, cameras, typewriters, microphones etc. and so on are knowable and have stand alone functions. The explosion of what are known as apps in mobile computing generating $200 billion of business in 2004 [19], is the result of this 'machine

making other machines' capacity. Hence, rapid proliferation and a change of scale into million if not billion of interactions and more, is a central feature of the medium and its messages.

Interactive film, which is what we see as the computer screen surface, is then the result of convergence. The word *convergence* is often used inaccurately and creates more confusion than understanding. The word 'converge' suggests that things are becoming focused into a single almost absolute point. The real underlying principle of interactive film is a marriage between film and programmed interaction, the re-patterning of data. Hence this compounding of the two processes, one the simulation of a material process, the other electronic - brings about the invention of screen repre-sentations whilst also referring to a database. The *telegraph* is also a convergence; electrical conductivity was converged with the intellectual / physical process of speech. The notion that the current of a wire could be interrupted and that the inter-ruption of the current could follow a code representing the sonic alphabet was a mar-riage, a convergence.

Essentially there are three main characteristics that support calling the medium of the computer, interactive film:

The first is the **presence of touch** as a predominant interaction mode [20].   If we take the example of the ever-popular smart phone and tablet interface now in exten-sive use, the management of the user applications is through a gentle left and right motion finger touch motion. Clearly this resembles film in its early manifestation travelling through an edit machine (see Figures 5 (a) (b)).

Fig. 6. (a) Manual film editing; Source Google images simulating film Human touch is an essential (b) Smartphone surface Source: Google images

The current success of smart phone technology is the result of adopting a film metaphor by designers. The design of the surface is useful from a user perspective in that the volume of information for the user is limited by the left and right movement. A constant difficulty for the designer is the appearance of overwhelming amounts of data representations; for the user, the visualisation of user functions must be coherent and not lead to cognitive overload. The adoption of the film as a material design metaphor has solved this pervasive and difficult problem with astounding commercial success resulting.

The **second is convergence of the data-base with the film surface**. The constant movement of the film surface to and from the database is a unique feature of interactive film. This is best understood from the perspective of *interaction*; we can say that each viewing of a screen presents us with a new frame. Film traditionally operates as a medium travelling in a single playback direction delivering the illusion of movement at 26 frames per second. The computer readily delivers the playback of digital film copying its analogue form. The other depictions of media forms are also film projections but they are often still frames. Rather than travelling along the axis of time, the graphic user interface (GUI) refreshes the image in the database, adding or subtracting data as directed. In this way the refreshes screen can be understood as a film edit, or a new frame in the original experience of the screen. A significant difference in the traditionally fixed film playback and interactive film is that fixed film is repeatable and passive. Interactive film may be repeatable in its original form and unaltered by interaction and commands sent to databases makes the relationships between the interactive entirely film unique [21] .

The **third is the nature of representations** classified as either realistic or animated, a distinction that is typical of film [22]. The photographic basis of film allows itself to make either real or animated depictions.
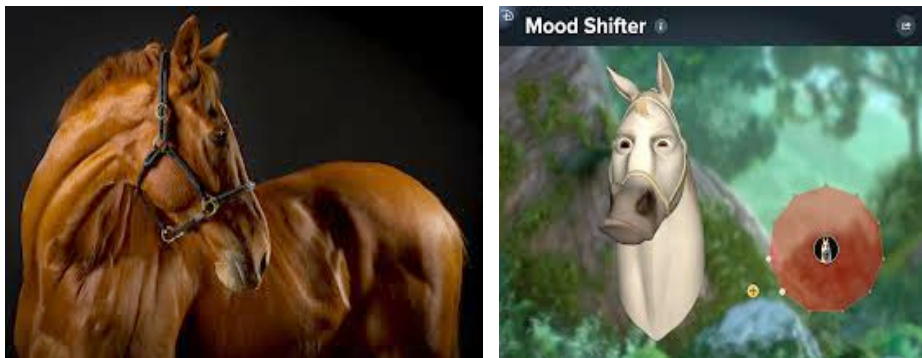

Fig. 7. (a) Real photographic images (b) Animated representations Source: Google images

The real, is that which has an apparent parallel from the image to world which we share and experience; animation is the capacity to draw or fabricate illustrations which have life-like qualities, often described as that traditionally has also relied on a photographic process. A look at any smart phone and the representations of its applications indicates a strong mix of both the real and animated. The distinction often goes undetected (see Figures 6 (a) (b)).

5   Conclusion

The focus of this paper has been to briefly survey select examples of older and contemporary media up to and including the computer at the moment its absorbs old media and to describe the characteristics of new media. One modern medium stands out in the process and that has been the medium of film, and as discussed, it is interactive film – the convergence of film with database interaction – that best describes the medium of emerging human computer interaction.

From the viewpoint of the emergence and socialisation of the book, we can see that a type of person, the individual, was not only the content – the message – of the medium, as featured in Shakespearean texts, but that the mechanical reproduction of the medium and invention of that time also encouraged individual interpretation to occur through increased access to information. Importantly, this is a manifestation of sound.

It is noteworthy that painting has been a medium that has a highly functional and practical beginning in terms of perspective drawing. It's evolution however has gone far beyond that, displaying a capacity to self reflect in ways that responded to other media technologies and to crises of redundancy in the art form, creating innovation within the medium. The capacity of painting to do so is very interesting and may explain its long-standing success to take a dominant role culturally for so many centuries. Importantly, this is a manifestation of light.

In the case of interactive film we are still only just beginning to understand the behaviour of the medium. The three qualities – transport, interaction, and the dual representation of the real and the animated – are highly significant factors in the current success of the computer. The summary here has been focused more on the medium rather than the message, a result of the still overwhelming development and invention of the technical aspects of computing. Importantly it is the recording of both sound and light that are at the foundation of film, absorbing both book and painting.

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