CHAPTER III

THE CLASSIFICATIONS OF DIGITAL ART

Digital art is technically a renewed version of the visual art\(^1\), which is perceived as a sub-category of the contemporary art based on digital technology. It has secured a distinctive recognition in the world of art.

In the early years of the second half of the 20\(^{th}\) century, digital art has kept its place paralleled to the growth of computer and audio-video technology. It achieved remarkable towards the end of the last millennium. It is a blended reincarnation of multiple art forms; developed by the collective traces of painting, photography, installation art and various other forms of the art.\(^2\)

To understand the complex classification of the digital art one needs to go through various approaches and critical reviews of the experts in an extensive manner.\(^3\)

Digital Painting

Painting is the most ancient and one of the common art forms liked by people in various civilizations throughout the world.\(^4\) Like the rest of the world, India also witnessed indelible influence of painting in its traditional rich culture. India can be considered as the cradle and breeding ground on the painting in the world.\(^5\)

Painting helps historians, archaeologists and artists to understand the culture of any region and every recognized culture of the world boasts on some unique paintings in its cultural heritage.\(^6\)

Prehistoric cave art was discovered through the findings of the ancient cave painting in Europe.\(^7\) For example, painting found on the walls of caves in Europe dating back to 40,000 B. C. This fascination has become so appealing today that hundreds of museums all over the world display their painting collections to millions of visitors every year.\(^8\)
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Painting is considered as a versatile branch of visual arts, where an artist can give expressions to innovative and artistic ideas and situation. A good painting can bring the viewers into a fascinated world and through changing their feeling one come across new thoughts. No doubt, a painting can be quite realistic, visually abstract and technically supported. However, going back to the era of Leonardo Da Vinci, we find that technology was merely considered effective methods of painting developed by artists of that period. Later on, artists of those times always tried to discover new methods to produce realistic meaning of the painting.

The approaches of 1970s computer graphics researchers were quite similar in this aspect as they applied computer algorithms for realistic fusion artwork. History witnesses that technology was perceived as an effective source of image reproduction by a majority of the painters in that era. This trend continued till 1837 when Louis-Jacques-Mandé Daguerre introduced the photography in the world.

Equipped with traditional tools, many great artists like Leonardo Da Vinci have made great contribution in the art world with some of this best classical paintings ever created. This legacy was later developed into the great proportions of the realistic work of art, such as Rembrandt, Goya, Vermeer and other masters of paintings.

Year after year, the basic processes of painting changed gradually, but the impact of technological advancement was a bit slow and slight in its evolving course. Whether computer has changed the life of modern artists or not is a debatable topic, but no one can deny the fact that computer has drastically changed their working methods. The advent of the computer has only simplified design and manufacturing related engineering tasks, but also transformed the world of audio and video production into great heights.

The three intermingled aspects of painting; ‘Importance of the process,’ ‘Importance of accident concept,’ and ‘Importance of complexity’, which are the essence of a painting are ignored by the new breed of artists. The new generation of digital artists must focus on three concepts in their artistic work.

Painting is the tangible outcome of intangible thoughts and feelings which represents an artist’s perception to define his world. The whole process can be
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called as the concept of the accidental, which pushes him/her to transform the feelings in a piece of art. Legends like Pablo Picasso beautifully implied the concept of the accidental elements in his artistic process and he declared, “I begin with an idea and then it becomes something else.” For Picasso, an idea is just a beginning not an end.\textsuperscript{13} Similarly, for Jackson Pollock, a painting is as unpredictable as life and in it meets various unknown routes and changes. A painting has a \textit{life of its own};\textsuperscript{14} moreover, the role of complexity is also unavoidable.\textsuperscript{15}

In the 21\textsuperscript{st} century digital art annexes wide publicity in all parts of this world. It is appreciated by all sections of the societies and businesses all over the world.\textsuperscript{16} Digital painting originates from the traditional art and to understand the digital painting, take a step back and look at digital painting in the context of art in general. The description made by an American author Robert C. Bob Pritiken is subtle as well as very true. He says, ‘All art made by the use of the digits in our hands, from finger painting onwards, is digital art’. Though paints are replaced with pixels and brush with a computer mouse the feelings and perception of an artist remains unchanged in digital art.\textsuperscript{17}

History tells that these digital images were the part of the study of art for the last several decades.\textsuperscript{18} Iconic George Seurat, the French post-impressionist artist is the best example in this regard, where he painted hand-drawn paintings in forms of pointillism resemble the digital pixels.\textsuperscript{19}

The present days digital art based on pixels had been termed as pointillism by art critics in the late nineteenth century. It is also referred as Neo-impressionism and Divisionism by some groups in the early 20\textsuperscript{th} century.\textsuperscript{20} In painting the matrix of small colour dots forming an image is known as pointillism, which gave birth to digital art. ‘\textit{A Sunday on La Grande Jatte}’ (plate-1), the landmark contribution of Georges Seurat in 1886 informed people about the hand drawn pixels or simply pointillism in that era.\textsuperscript{21}

Seurat has given a new concept to the art world and in the historic paintings. He beautifully synchronized tiny dots of different colours in the \textit{optical} media, rather than choosing the canvas. He preferred integrity to overlapping and unity than mixing to create more harmonious and \textit{vivid} result.\textsuperscript{22}
Pointillism is more scientific than other artistic concepts or one can say that it is the mixture of science into the arts. Pointillism is the technique which meets the demands of viewers and gives a scientific vision to explore the art. As discussed above, a pixel is the digital version of pointillism in the communication age. Each tiny pixel corresponds to a dot in varying colours and the harmony of these pixels creates a digital painting or art.\textsuperscript{23}

With the passage of time and developments in technologies, the past practices of George Seurat’s Pointillism and Divisionism of Neo-impressionistic painters of the early 20\textsuperscript{th} century became easier and more applicable to redefine the digital painting.\textsuperscript{24} Furthermore, the developments in technologies, software likes Adobe Photoshop, Coral Draw and various operating systems in digital technology enabled the artists to choose their own brush style with the help of customized and standard features. Computer technology is a linchpin which connects the traditional painting with the digital painting. It is noteworthy that digital painting systemised and simplified the art process and the growth of websites are supporting many online galleries as well as digital painting and other digital art creations.\textsuperscript{25}

Art practices in the recent time backed by the software and websites on the internet allow people to create something unique and creative.\textsuperscript{26} One can experience these digital images in desired sizes & effects and can secure them in the form of printed copies for multiple purposes. In addition, an artist can produce the replica of the origin and can even give a new life to the existing painting with the help of different changes and combinations in digital elements. These tools and resources can be accessed or downloaded at systems with the help of internet.\textsuperscript{27}

Digital painting is making waves in all the well-known art galleries around the world. The fictitious assembly of art and painting has found a new avenue to promote, buy and sell this new form of art.

Hence, technology has not only revolutionized the art, but it has also provided a unique platform to commercialize it.\textsuperscript{28}
Digital Graphic

Visual presentations on the surfaces of canvas and paper is known as graphics, but if the same thing performed with the help of computers and the image results on a computer screen then it is called digital graphics. This artistic expression has changed itself into a kind of artwork covering a board variety of art forms. It generally incorporates drawing, painting, photography, printmaking, typography, serigraphy (silk-screen printing), two-dimensional and three-dimensional art forms.  

Graphic art is the outcome of purposeful determination that produces creations like brochure, website, poster and book without having different components. These graphic communication remains the objective and association with other social elements might also be sought, merely, the production of a different style. Additionally, it also comprises of drawn arrangements and designs for interior and architectural layouts.

Today, graphic art is most commonly connected with commercial art utilized generally for marketing and promotion of businesses. Strategies of graphic art are to develop a relationship with the viewers towards product and thereby acquire benefit in business.

Businesses that regularly interact with individuals of diverse areas and dialects recognized that by images and graphic designs of the items they could accomplish more business and more deals. The signs helped merchants to recognize different products.

Later in the medieval times, physically replicated copies with individual page of the original copies were utilized to keep up their sacred teachings. The scribes left certain marked section of pages accessible for artists to include suitable drawings and decorations.

A great change came in 1440, when Johannes Guttenberg invented the printing press. The printing press facilitated mass-production of text and graphic art and finally replaced manual transcriptions altogether. Further, during the Renaissance period, graphic art in the form of painting played an important role in spreading of
classical literatures in Europe. In the domain of manuscripts, book designers focussed
heavily on print.

During the Industrial Revolution, the development of larger fonts as posterecame a very popular form of graphic art which were used to give the latest
information to advertising the products and services. In the modern era, the invention
and popularity of the television has entirely changed the world of graphic art. Another
additional and impressive tool of motion used by advertising agencies to utilize
kinetics to their advantage.

The graphic art in India has a shorter history as compared to the painting and
sculpture. Calcutta is well known as a huge centre of modern printmaking as
compared to bigger traditions existing in the fields of woodcutting, lithography and
many more.

Raja Ravi Verma was the first modern Indian artist who consciously used
graphic medium to reach to the maximum number of Indian people through his
religious and social themes. During the last decade of the 19th century he established
his own lithographic press at Ghatkapore in Bombay.

Nandlal Bose also launched a printmaking project when a French artist,
Andres karpalles visited shantiniketen in the year 1928-29. He made a series of
figurative graphic designs in black and white which were extremely stylized. His
contribution in these graphic techniques inspired some of his other followers such as
Remendranath Chakravarty and Manindra Gupta in the late 1940s and 1950s. Binod
Bihari Mukherjee and Ram Kinker Vaij were also joined in etching and lithograph
work.

Mukul Day played a leading role in promoting printmaking after his return
from England, where he studied modern techniques of etching, aquatint and other
modes of graphic art. This innovative technique along with the imagery was much
influenced of the conventional Bengal school made his imagery a new touch. He
showed great skill to capture the effects of wash, flowing lines and subtle tonal
foundation in the complicated processes of etching and aquatint.
Another change in graphic arts came when the computer was developed in the twentieth century. Effective software in computer programming empowers artists to control pictures in a much faster and easier way with fast calculations; computers effectively recolor, scale, rotate, and rearrange the images.\textsuperscript{34}

The advanced digital graphic art has become very widespread today. The term computer graphics art has been utilized as a part of a broad sense to describe almost everything on a computer that is not text or sound.\textsuperscript{35}

To create digital graphic art, it is simply not enough that one possesses the basic knowledge of the techniques and the craft, but it is much important that he/she knows design, the ideas and vision, vastly and is able to produce distinct recognizable art products with the help of chosen printing techniques. As Erich Bauer has expressed it very apt by in the quotation ‘\textit{The artistic design of the image is inseparable from the technique of a certain printing procedure}’.

Particularly, the term digital graphics refer to several distinctive things, for example representation and control of picture information by computer, various technologies used to create and manipulate images produced, and impacts of software engineering which studies over systems to digitally incorporate and control in the substance of interest. Therefore, it reflects deeper study of computer graphic. The improvement in computer graphic art has empowered computers to interact with others through better understanding and exchange of diverse sorts of information.\textsuperscript{36}

Further, digital graphics are used today in various areas and it leaves with a profound effect on numerous services of media and have reformed animation, education, and film making into most advanced industries of the present era.\textsuperscript{37}

Many influential tools have been produced to visualize data information. Computer based images can be classified into 2D, 3D, and animated images. With the development of architectural, engineering, now enhanced 3D computerized designs have become more popular, at the same time, 2D computer graphics are broadly used to change the orthographic drawing.

The expression digital graphics was invented in 1960 by William Fetter, a graphic designer at Boeing. Further, advances in computer technology have led to
greater advancements in intuitive computerized graphics. Numerous organizations established in the field of digital graphics during the mid-1960s. IBM came speedily with the IBM 2250 graphic terminal, the first commercial available graphic computer in the world. Most vital early achievements in computer graphic exploration were accomplished at the University of Utah (Salt Lake City, United States) in 1970s. 3D graphic representation became more popular in 1990s in games, entertainment, interactive media and animation industry.38

In the 21st Century, advanced digital graphic art is picking up further heights with the development of exceptionally sophisticated software programming.39 Digital graphic an innovative process frequently using by artists and designers and generally works in coordination between members of different teams such as graphic designers, printers, sign makers, etc.

The term digital graphic alludes to various artistic and professional disciplines that concentrate on visual communication and presentation. Various disciplines are applied to create and join words, symbols, and pictures to make a visual representation of thoughts and messages.40 A graphic artist may utilize a blend of typography, visual expressions, and page format procedures to create the final results. Graphic art refers to the procedures by which the communication is made and the items are created.41

Contemporary graphic artists are in a more advantageous position culturally than they have ever been and have a maximum range of processes at their disposal. Many graphic artists have been producing some of the most innovative works of recent years by using creative technology of both past and present. Sometimes they avoid usual route in the transformation of their ideas into physical form. These artists are gaining the computer’s future by contributing their own ideas, encouraging technology to develop in a more imaginative and human form. They are also stimulating their viewers to appreciate real art and skill. The potentiality of this approach in terms of effective communication is quite high and suits uncertain cultural environment.42

It can be concluded that graphic art provides one of the most natural means of communication with computer.43 It covers all areas that require verbal language
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translation into a visual creation of text and images on various media publications in order to convey meaningful message to the customers as effectively as possible.\textsuperscript{44}

Digital Installation

The term ‘Installation’ is derived from a Latin word ‘in-stallo’\textsuperscript{45} which means, placing something in a fixed and frozen position, where nothing can be changed.\textsuperscript{46} When we do this process with the help of computer application it is called as digital installation. This art form has been used in a broad range of contemporary art’s practice which includes 2-D and 3-D materials to help us getting experience or observation of a particular space,\textsuperscript{47} where the totality of objects and space remains alive in the artwork.

Installation art can cover traditional and non-traditional medium and almost every type of material or medium can be utilized with it, including painting, sculpture, ready-mades, originate-objects, drawing and text; besides this, new media to be used in video, film, photography, audio, performance and computers.\textsuperscript{48}

Installation is an art form of creation and display of artwork rather than a movement or a style. This art form contains simple as well as very complex ranges at different places. It can be gallery-based, digital-based or computer-based. It depends entirely upon the artist’s concepts and aims.\textsuperscript{49}

The concept of installation art is of relatively not a new origin and is a self-conscious term used universally. In India, term installation used for the interior and exteriors purposes, sometime to express the religious and cultural values. For instance, history of installation begins from historic age, whereas the form of ritual installation like tulsi chaura (a platform raised for tulsi to be planted) in the courtyard of general houses, floating lamps left in a river, installations of the stones and bones and other objects such as kalash, flowers, cloths and the symbolical marks of colours in other words it is also called installation art.\textsuperscript{50} It can also be applied in redefining ancient creation like as stonehenge’s primitive models, environment or other astronomical installation.\textsuperscript{51}

However, installation art practices came to notice in the 1970s, but its roots can be seen earlier in the artwork of Marcel Duchamp a French-American painter,
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who used ready-made objects rather than customary craft based sculpture. The intention of the artist is foremost in much later installation art whose roots lie in the conceptual art of the 1960s. Conceptual art is a form of art in which the ideas or thoughts rule over traditional aesthetic and materials concerned.

With the introduction of technology in almost every sphere of life a huge change has taken place in the very fundamentals of art and creativity.

Today, installation art ought to be seen in the context of historical description of art. Installation art can be seen as a physical experience, where one can stroll into and possess. It considered not only art objects but also the venue itself and the spaces in between the things. It is a sort of more or less recognizable than conventional arts and subsequently can possibly cause amaze or shift points of view much the same as to venture out to a new place.

Several installations display lighting, sound, even smells or temperature in the work through which an artist can express abstract views and adopt approaches which can easily be conveyed to the viewers.

Digital Installation is an artistic intervention designed in order to help us recast our life and values. An artist constantly requires to give new methodologies and possibilities. He/she is required to show this prowess by embedding status on mind, feelings, psychological, spiritual experience, political desires, and philosophical experiences in the art pieces.

Digital installation art constitutes a broad field of activities and it incorporates numerous structures. Additionally, this artistic expression looks like video installation especially substantial scale works including projections and live video capture. By utilizing projection techniques that upgrade people's impression of tactile envelopment, numerous advanced digital installation endeavour to make immersive situations. This sort of digital installation is usually aspects specific sites, scalable, and without fixed dimensions and accordingly it can be redesigned to accommodate distinctive presentation spaces.

Noah Wardrip-Fruin is a teacher in the software engineering Department of the University of California who has made an interactive media art piece called
‘Screen’ (plate-2) which is a good example of digital installation art. To view and cooperate with piece a user first goes into a room called the ‘caves,’ which is virtually a real or presentation zone with four walls encompassing the participants. White memory texts show the background of black walls. Through bodily collaborations of using one's hand, a user can move and skip the text around the walls. The words can be transformed into sentences and ultimately begin to peel off and move more quickly around the user, making an elevated sense of inspiration. The screen was first shown in 2003 as a major aspect of the Boston Cyber Arts Festival (in the cave of Brown University).\(^6^0\)

Early non-western installation art included events organized by the Gutai Group in Japan in the beginning of 1954 which motivated American installation artists like Allan Kaprow and Wolf Vostell to demonstrate their installation work entitled ‘6 TV De-Coll/age’(plate-3) in 1963.\(^6^1\)

While this genre of installation art is familiar to an art-loving, audience but it warrants a brief description. Installation often overlaps with other post-1960s genre such as land art, minimalism, video art, performance art and conceptual art. All of them show an interest in issues such as site specification, participation, institutional critique, temporality and ephemerality.\(^6^2\)

Over the past ten years, a new generation of artists has demonstrated their presence in this art practice with the imaginative art medium. Digital Installation artists constantly mesmerized viewers to arrange effectively with their art and handle the genuine importance of these artworks. This demonstrates that viewers have gone into another and beneficial association with this work of art and in the same time it indicates how contemporary artists have changed methods utilized by the earlier generation of installation artists and have received challenging and energizing new methodologies.

The contemporary artists are getting motivation from film and television, for making environment that permits viewers to experience different spaces and concurrent occasions, with the assistance of sound, story and picture.\(^6^3\)

Artists have been completely uncritical in their acknowledgement of new innovation as a positive help to their art. On the other hand, may be artists have
chosen to utilize new innovations. New inventive approaches to break down the obstructions between the viewers and the installation art object. Consequently, these artists have actually imagined new modes of interpretation that effectively interlink visual, material, and aural sensations with the development of time and space. Experimentation with moving picture and sound has opened new potential outcomes for joint collaboration among visual artists.64

**Digital Animation**

The term animation is derived from a Latin word ‘anima’ meaning ‘soul’.65 It is a process of art in which an artist can display a sequence of images to create the visual illusion of motion and living objects.66

Digital animation is the process in which artist can create moving images by the use of computers and animation softwares such as Adobe flash, Light wave, Dream studio and many more. It includes a method used to create animated images through computer graphics.67

In digital animation; an artist can draw both 2D and 3D images in a sequence for the animation. In 2D animation an artist creates two dimensional position of the object by using two axis-x and y together with the help of a computer, resulting in an illusion of motion, whereas in 3D animation an artist creates three dimensional position of the object by using the three axis-x, y and z together with the help of a computer to create an illusion of motion.68

In other words, it is a process of connecting a series of drawings in a fast display of images to create their combined movements. It is a form in which inanimate objects are brought into life by sequencing the drawn images.69 This artistic technique is identical to the illusion of movement as in television and motion pictures.70

Today, digital animation is being used in professions such as interior designing, architecture, entertainment and education to create a better workflow.71 Digital animation is a great example of a visual technology that can increase understanding and employ students in the field of education, and entertainment. This
art form is providing a vehicle for students to create their own meaningful connections with the content.

In the field of art, digital animation can be used to inspire, educate, inform and entertain such a display world which it did not perceive earlier. Professional animators used this art form to evolve into interesting new areas due to the presence of advanced techniques which allow them to do new things.72

The digital animation equipments have undergone radical changes and it has replaced virtually everything except one thing which is still unchanged that is the role of an artist who has created the art. Artists have played the most valuable role in the process of creating animated projects.73

So animation is an artistic process, where artists intend to create new characteristics and make animations look more interesting alive and adorable. Animation has been a significant form throughout the history of cinema-prompting, information and responses to the technological innovation in film production.74 In the entertainment industry, animation artists are required into various departments such as texturing and background artists, environment creators, compositors, special effects artists and many more.75

In the 1940s the state-financed film division set up the cartoon film unit, allowing continuous production of animation and most of the films were based on social or educational themes.76 Cartoonists began making ‘trick films’ by moving an animated object in a movie-cameras and producing animation.77 In 1956, the cartoon film division produced by J.S. Bhownagary entitled ‘Radha and Krishna’ (plate-4) by using the miniature painting of Indian art.78

The animation art form has an interesting history. The evidence of depicting figures in motion can be seen as an example in the still drawing of a Palaeolithic cave painting ‘Hall of the Bulls’ (plate-5) where animals are depicted with multiple sets of legs in superimposed positions, clearly attempting to convey the perception of motion.79
Innumerable approaches to creating animation have arisen throughout the years. It has always embraced new technology and sought out ways in which new tools might facilitate innovative artistic results.\textsuperscript{80}

However, the history of the digital animation which is a little more than 50 years old is still in the making stage. American artist John Whitney created the first analog digital graphics in 1957.\textsuperscript{81} During the mid-20\textsuperscript{th} century, John Whitney a pioneer figure in establishing one of the first digital animation studio ‘Motion Graphics Inc’ developed analog computer-generated light effects.\textsuperscript{82}

The Early digital animation was created at Bell Telephone Laboratories in the 1960s by Edward E. Zajac. An early attempt in the history of digital animation was seen sequel of the 1973 film 'West world' (plate-6) a science-fiction film about general public in which robots live and work among humans.

An alternate spin-off, ‘Future world' (plate-7) in 1976 utilized 3D Wire-frame imagery which highlighted a computer created hand and face made by University of Utah graduates Edwin Catmull and Fred Parke. This imagery had originally appeared at the students' film festival, the film a computer animated hand that was completed in 1971.\textsuperscript{83}

As well as in India, Ram Mohan is known as an outstanding animation artist and design educator, the father of the Indian animation industry. He had a vast experience in animation films during his association with Cartoon Films Unit, Films Division of India. For his remarkable contribution and services to the animation industry, Government of India conferred upon him the National Film Award for Best Non-Feature Animation Film in 1972 and 1983 respectively. Moreover, he was also awarded a lifetime achievement award at Mumbai International Film Festival in 2006. The awards and recognition didn't stop and most recently, the Government of India honoured him with the prestigious Padma Shri award in the year 2014.\textsuperscript{84}

In the early phase of his career, for more than a decade he was having associated with the Films Division of India since 1950s to the second-half of 1960s. During that period he immensely contributed to the growth and evolution of the animation industry. He animated more than hundred movies.
Apart from 2D technology he instrumentally incorporated 3D computerized animations, graphics in some of the movies. Besides his devotedness for animation, his services to the education sectors is also praiseworthy. He further played the role of a teacher, educator and a true mentor for young animators and graphic designers of India. As technology continues to evolve and give us new tools, animators will be expected to use these new tools and find new ways of telling us entertaining stories, and show us the wonders in a brand new light.

Digital Animation can, therefore, be named as a modern art, constantly developing an innovative language of expression related to other art forms; at the same time it brings out phased changes in culture and society.

The above-mentioned analyses of multiple aspects of digital art justify that the art world is moving more swiftly by using digital equipments in a ‘digital age’ of an increasingly digitized universe and rapidly reshaping our lives in multiple directions.
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Computer Monitor, Stop Motion, Key Frame, Streaming Media. Alphascript Publishing.


