The Impact of the Technological Development of Digital Processing and Presentation Methods on the Creative Aspects of Cinematography

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Research Summary in English:

The continuous technological development directly affects the possibilities available for digital cinema processing, presentation and viewing techniques. This research examines the most important developments by discussing their impact on the creative aspects of cinematography. It discusses (softcinema), which is the beginning of the creative rooting for the use of the technology of image processing liberally and democratically. The research then moves to stereoscopic 3D viewing experience, either by shooting with two-lens cameras or single-camera camera, then making digital treatments and adjustments to deliver the desired effect, reaching the final step of presenting the 3D film.

The study then reviews the mixture between the various film media, so that the director of photography can take advantage of the different aspect ratios and characteristics of various film stocks materials such as: grains and light sensitivity and merge them in the digital intermediate (D.I) as an innovative narrative way to express different dramatic effects with each stock. The digital technology also enables intertextuality through different processes, by simulating the look of a certain film stock using visual effects, also, this technology allows other kinds of simulations, the digital alterations currently available enable the director of photography to suggest to the spectator that he is watching something similar to what he sees on his mobile phone, computer screen or anything the image designer wants. And then the study discusses interactive cinema and virtual reality, which change the way of filming and presentation of the cinematic image almost entirely, allowing the Director of Photography creative new spaces and unfamiliar territories to explore that doesn't have their fixed laws yet.

The aim of the research is to illustrate the latest technological developments in the field of digital image processing and presentation methods for cinematographers. It aims at presenting the most important creative changes introduced by these technological developments in order to spread artistic and design awareness among the specialists in the digital film industry, and facilitate the adoption of these technological developments with a greater understanding of the creative capabilities provided to the designer.

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SoftCinema:

The Russian theorist Lev Manovich developed a modern theory that combines digital culture, software technology and cinema and is called SoftCinema. A special project was launched that brings together critics and artists involved in the development of this theory. The same project is known on the official website as: "A project concerned with the creative possibilities resulting from the intersection of software culture, cinema and architectural space, and its effects in film, visual arts, digital compositional arts and publications". This theory is closely related to cinema becoming "integrated" in many of the media the viewer deals with, such as television, computers, and personal telephones. In the new forms of expression, cinema is no longer the preserve of the professional industry, it has become an open source computer program. This means that editing the movie, re-editing, adding effects or mixing movies to produce different products is easier with a PC and online uploading. Once it is put on display it is truly available to all, in what is known as " the democracy of the cinematic medium".

Stereoscopic 3D presentation:

The 3D stereoscopic presentation is the most noticed technological development in image processing and cinematography in the past years. The production of a three-dimensional film requires changing the cinematographic plans almost entirely, by using three-dimensional cameras equipped with two adjacent lenses, or by digitally processing the image after shooting with a single-lens camera to give the desired 3D effect, and then preparing the image for display through special projectors that show the image through two different polarized lenses.

Mixing multiple cinematic media:

Filming with 35mm negative films has been relatively stable throughout the last century, and has become the most suitable medium for commercial cinematography. While the first decade of the twenty-first century saw a rapid shift in digital photography in consumer markets, cinematography remained far from this transformation, as it required a higher level of technology, until the beginning of the second decade digital cameras couldn't compete with the usual 35mm film, to the extent that until 2007, there was no digital cinema camera with a resolution of (4K). Then, in recent years, digital cinematography has become the standard, and digital intermediation processes (D.I) became most important digital image process of the present age, and guaranteed the potential to use different film media in the same artistic project, or even different film and digital media,

Visual intertextuality through the film medium:

Visual intertextuality is defined as the links between the current artwork and previous works. One of the mechanisms of intertextuality in cinematography is the medium itself. Ironically, one of the most important features of modern technology is the ease of reusing old technology, or at least simulating it through computer programs. If the director and the cameraman wanted to give tribute to a film made in the 1930s in terms of the aesthetics, they can easily use the tools, camera and lenses used in that period. This form of medium intertextuality is a feature that is not available to many other sorts of art. Non-technology-

based art, such as literature, cannot take advantage of the development of the medium to refer to a particular era.

This approach means that the use of white and black film, Technicolor process or other classical film media may now be considered a modern technology, and on the other hand, some other filmmakers cherish the digital image's aesthetics, that presents images without flaws, impurities or film grains. They see the desire to transform the digital image to look like film as nostalgic and a work of habit, and believe that gradually the spectator will be accustomed to the different look of the medium, and may see it more appealing over time.

Visual intertextuality through television media:

Visual intertextuality in cinematography is not only quoting from the same medium in its earlier stages (such as the use of black and white film), but also extends to the citation of multimedia that has imposed itself on the spectator's taste and visual memory in recent years, Television being the most common and important of them.

Usage of smartphones and computer monitors:

Creative applications of video imaging technology have taken another trend in the proliferation of high-quality smartphones, with the new medium has infiltrated the film industry. Award-winning directors started filming their new projects with phones, opening a new experimental space in film. Also, there are many films in the recent years that took inspiration from mimicking PC and Laptop monitors.

Interactive Cinema and Virtual Reality:

The interactive cinema reflects the constant struggle between the artistic goals and the limits of the available technology. Filmmakers over the years was trying to find creative way to involve the viewer in the cinematic experience and its involvement in decision-making. After the Internet, interactive cinema passed through key stations mixing cinema and video games by showing the film on a Web site, making the viewer click his mouse to select the next scene until the film was completed. However, contemporary technological developments have linked interactivity with virtual reality and Augmented Reality, both common expressions of the digital revolution, and indicate - with their different techniques of work - the increased realism of the experience by creating a world Surrounds the viewer, to get to live in cinematic scenes with great credibility, and provides more interactive capabilities. Instead of choosing the next video or story track by typing on the keyboard or clicking the mouse, the spectator in virtual reality can move their whole body to the right or left to respond to the film the way they desire.

The interactive component of virtual reality presents a fundamental problem in the design of a film. When a spectator becomes involved in the technical decision-making process, the director and director of photography can be disrupted in how they direct the viewer towards specific intent in terms of composition, color or camera movement. The richness of the virtual reality environment may be misleading and distracted to the spectator. The more we try to formulate a more realistic environment, the greater the user's freedom to manipulate and control the environment, and we lose the "subject" of the work and its technical unity, so cinematographers and designers are working closely with tech companies like Google on

setting new rules that allow the spectator to feel free, and yet passing through a designed and intended film.

Results:

- The technological innovations in the cinematic image are divided into two main fields: the image processing, which are the ways of capturing and digitally processing the image, mixing different media, and the evolution of the cinematic presentation, both in its traditional forms and in interactive cinema.
- The 3-D stereoscopic films offer new experimental spaces that are not fully used creatively by the restraints of commercial film-making.
- Image processors can mix multiple filmic media, enabling intertextuality through the movie medium or by interacting with other media such as television and computers.
- Interactive cinema using virtual reality offers new creative space for the director of photography, but has some obstacles in allowing the viewer to be properly guided by the image designer, needing more practice and rules that are yet to be set.

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