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Photographic Journalism And Digital Photography In The Age Of Ai: Obstacles And Opportunities

Kinjalben Brijalkumar Shah[1], Hiren Kishorbhai Patel[2]
[1]Assistant professor, Shri D N institute of computer applications, Sardar Patel University correspondence author: - kinjals.2001@gmail.com
[2]Assistant professor, Shri D N institute of computer applications, Sardar Patel University hiren4143@gmail.com

Abstract
Digital photography and photojournalism both have been greatly influenced by the development of artificial intelligence (AI) technology, which has brought along both exciting prospects and severe obstacles. A substantial danger to the credibility of photojournalism is posed by the development of editing tools and techniques for manipulating photographs that are powered by artificial intelligence. Images that have been altered contain the potential to spread false information and damage public faith in visual media. For the purpose of this study, the fast development of artificial intelligence served as a background for examining the junction between digital photography and journalism. In addition to revolutionising creative processes, the project intends to investigate the ethical, professional, and industry-specific challenges that are brought about by the use of artificial intelligence in digital photography and photojournalism. According to the findings of this study, photojournalists and professional photographers need to have an understanding of these dynamics in order to devise tactics that would enable them to visually communicate stories in the modern world without compromising the quality or worth of their work. This study makes use of a qualitative research methodology in order to shed light on the significant challenges that photojournalists and photographers are currently confronted with. These challenges include the dangers of manipulating photographs for the purpose of gaining financial advantage or spreading false information, as well as the necessity of adapting skills to a landscape that is becoming increasingly influenced by artificial intelligence. According to the findings of the research, there is potential for the application of artificial intelligence technology to improve narrative, expedite procedures, and increase audience engagement. An emphasis was placed in the article on the fact that in order for professionals to succeed in the rapidly changing field of digital media, they need to adapt to the shifts that have occurred in digital photography and photojournalism while simultaneously maintaining ethical standards, encouraging innovation, and welcoming technical breakthroughs.
key words*: Photojournalism, Digital Photography, AI generated Creativity, Authenticity, Technology.*

INTRODUCTION

As a result of the application of artificial intelligence technologies, the fields of photojournalism & digital photography have seen tremendous growth and changed significantly in recent years. By virtue of the impact that AI has had on the photography industry, photographers and photojournalists are presented with unique opportunities and problems. The merger of digital photography, photojournalism, & artificial intelligence will be reviewed in this chapter, along with the opportunities and difficulties that have arisen as a result of this convergence.

IDEA OF Digital PHOTOGRAPHY

When we talk about digital photography, we are referring to the process of recording and editing photos via the use of electronic equipment. Image capture is accomplished through the use of electronic cameras or mobile phones that come equipped with built-in cameras. According to Ogah, Obaje, and Okoro (2016) and Krome Studios (2020), the final product is a digital file that contains the photographs, which makes viewing, altering, and sharing the images more convenient. According to Bucerin (2014), the process begins with the capture of pictures through the use of electronic sensors and digital technologies, and then continues with the processing, storage, and alteration of those images. The process of digital photography involves the creation of electronic signals through the use of digital cameras. These cameras transform the light that is received into digital signals that can be saved and analysed. These files may be viewed, modified, and shared with others by using software that is installed on your computer or other smart devices. One of the most

important mechanisms for digital photography is the image sensor, which is responsible for converting the light that is coming in via the lens into electrical impulses. After the signals have been analysed, the central processing unit of the camera begins the process of digitising them (Krome Studios, 2020). The term "photo" is widely used to refer to these digital pictures, which are generally saved in formats such as JPEG or RAW. The sole purpose that pictures serve, as stated by Onyejelem (2018), is to generate representations of images that are utilised for communication purposes in newspapers. They encourage self-reflection and a range of feelings on the topic at hand. There has been a significant shift in the photography business as a result of the introduction of digital cameras, which provide a number of benefits in comparison to conventional film technologies.

Pros Of Photography In The New Era

The advent of digital photography has brought about a transformation in the processes of photographing, editing, and sharing photographs around the world. Consequently, it has enabled photographers to have a larger degree of control over their photographs, made instant review easier, and enhanced the process of picture sharing. The widespread adoption of digital technology has dramatically expanded the reach of photography as well as the range of applications that may be created with it. Prior to the widespread use of digital cameras, the industry was previously dominated by photographers who had received formal instruction in the fundamentals of light and darkroom procedures. As a consequence of this, the procedure that takes place in the darkroom to develop an image continues to be mysterious to those who have not had professional training. There is a growing possibility that more people will be able to purchase digital cameras, which will result in the democratisation of photography and the creation of new opportunities for artistic expression, education, and experimentation (Bate, 2016). There is a wide variety of software packages that make it possible to modify digital illustrations. Using picture editing software such as Adobe Photoshop, photographers have the ability to adjust the sharpness, contrast, colour balance, and brightness of their photographs. This gives photographers more freedom and control over the final product, in contrast to the traditional film photography that they were accustomed to (Gibbons, 2018). There are several benefits associated with digital photography, one of which is the ability to quickly analyse and delete photographs that are not desired. Photographers have the ability to examine the images they have taken on the LCD screen of their camera before deciding whether or not to keep such photographs. According to Gibson (2018), this immediacy helps to save time and money in comparison to film photography since it makes it easier to make modifications and retakes in a short amount of time during shooting. Over the past several years, the proliferation of digital photography has made it substantially easier for photographers to share their work on the internet and different social media platforms. The process of capturing photographs is as easy as connecting the device to a computer or mobile device, and then immediately sharing the images with an audience from all over the world. Furthermore, as mentioned by National Geographic (2020), this has significantly affected the distribution of images around the world as well as how people see them.

Photography As An Art Form

The word "photojournalism" refers to a significant subfield of journalism that makes considerable use of photographic documentation of news events. A combination of photographic and journalistic reporting is used to create a visual narrative that is communicated to the audience. According to Ritchin (2013) and Agbanu (2014), the core of photography is the ability to capture engaging photos that evoke feelings, tell a narrative, or offer a fresh perspective on events that are occurring in the present as they occur. According to Perry and Barrios-Choplin (1991), the profession of photojournalism entails the documentation and communication of the facts of an event through the use of an objective portrayal. It is a combination of narrative, aesthetic appeal, and ethical issues that is used to convey the core of a news piece. When it comes to photojournalism, one of the most important aspects is to capture the significant moment. Cartier-Bresson (1952) was the first person to use this word to describe the short instant when a picture truly creates a sense of animation and tells a tale. According to Van-Riper (2012) and Onyejelem (2018), the ability to acquire expertise in timing, composition, and framing is necessary for the capture of such moments. In the field of photojournalism, objectivity is an essential component. According to Stappers (2011), it is the responsibility of photojournalists to ensure that the images they create accurately portray the world around

them. It is of the utmost significance to maintain the credibility of photojournalism in this day and age, when digital manipulation and picture modifying technology are readily available. Recently, there has been discussion on the issue of whether or not photojournalism is objective. In light of the fact that every photographer brings their own unique set of experiences, points of view, and preconceptions to the table, there are others who contend that perfect impartiality is impossible to achieve (Barnard, 2011). Some people believe that there is a degree of subjectivity involved in the process of deciding when and from what viewpoint to take a photograph from. However, despite the fact that it is subject to criticism, photojournalism is an essential part of journalism. Because of the ease with which visual material may be accessed and the widespread availability of visual content in the modern digital age, images have a significant impact on how the general public perceives and interprets events. It is argued by Ritchin (2008) that photos have the ability to accelerate social and political development by making news tales more emotionally relevant for audiences, which in turn motivates individuals to take action.

Photographic Purposes

The objective of photojournalism, which is a kind of journalism that has a significant impact, is to educate, engage, and motivate viewers to take concrete action. The goal of photojournalists is to provide a fresh viewpoint on contemporary events, cultural phenomena, and social concerns by employing photographs that have been taken with great care to tell tales that are interesting to the audience. Photojournalism is a form of journalism that documents and disseminates information with the purpose of conveying narratives that elicit feelings and bring attention to critical global challenges. For the purpose of fostering a global community that is more educated, compassionate, and cohesive, the fundamental aim of photojournalism is to capture noteworthy events with the idea of motivating contemplation and action.
Creating a narrative through photography is the fundamental component of photojournalism. According to Onyejelem (2018), the use of photographs in news stories serves to bolster their credibility. This is due to the fact that pictures are more convincing than text alone.
According to Sontag (2003), photojournalism has the capacity to change the viewpoints and impressions that individuals have of the world. Through the captivating quality of pictures, photojournalists have the power to shed light on political and social concerns, improve public awareness, and even inspire people to take action. One of the most important aspects of photojournalism is the dedication to accurately portraying the truth and portraying reality. Rather than editing or otherwise manipulating the photographs, it aims to capture genuine moments and events as they take place (Fowler, 2016). The devotion of photojournalism to truth and veracity contributes to the field's increased credibility as a reputable source of news. The purpose of photojournalism goes beyond the simple reporting of events; it seeks to elicit feelings and cultivate empathy via the use of visual storytelling. Sturken & Cartwright (2001) believe that photojournalists have the potential to link their audience with the persons they show by highlighting the difficulties and emotional experiences that the subjects have gone through. There is a possibility that the emotional engagement will increase public sympathy, comprehension, & support with the difficulties that have been addressed. When photos are combined with narration, photojournalism produces a visually engaging portrayal of the events that are occurring in the news. Emotions, information, and the creation of public opinion are all possible outcomes of this. In the event that it is carried out in an honest manner, photojournalism has the potential to be an effective medium for the dissemination of news, the highlighting of critical problems, and the motivation for individuals to take action.

Photojournalists' Ethical Considerations In The Age Of Ai

In this day and age, when image editing technology are readily available and visual content can be quickly shared on social media platforms, photojournalism presents a number of ethical challenges. The application of artificial intelligence (AI) in the creation or alteration of photographs raises ethical issues, as highlighted by Cali (2020), who observes that AI can generate deep-fake images that disseminate misinformation and raises questions regarding potential bias in the selection and editing processes of images. According to Ogah et al. (2016), it is absolutely necessary for photojournalists to uphold ethical norms. The avoidance of re-enacted or fabricated events, the precise labelling of images, and the avoidance of manipulating or changing photographs to the point that they mislead the truth are all ethical principles in photography, according to

Oduh and Nwammuo (2008). Artificial intelligence (AI) presents photographers and news organisations with ethical issues, despite the fact that it offers a number of benefits. A significant ethical conundrum is presented by the possibility that graphics created by artificial intelligence may be used in a manner that is dishonest or misleading. The advancements that have been made in artificial intelligence have made it possible for us to create and manipulate visuals that take on a lifelike appearance. Consequently, this gives rise to questions concerning the honesty and trustworthiness of professional photographers and photojournalists (Jones, 2020). In addition, problems around privacy and consent are raised by AI. It is possible for automated algorithms to examine enormous volumes of visual data, including private images, without the knowledge or approval of humans. Crawford and Schultz (2019) bring attention to the problems of the invasion of privacy and the potential exploitation of sensitive visual information with their research. There are ethical concerns regarding the potential for overreach and invasion of privacy that might occur as a result of the implementation of artificial intelligence into face recognition systems. Artists who utilise facial recognition technology that is powered by artificial intelligence have a responsibility to stay cautious regarding the possibility of unfair profiling, unjust surveillance, or misuse, taking into consideration that these activities may violate the civil rights of persons (Self, 2020). Concerns have been raised because of artificial intelligence with relation to intellectual property rights. Whenever artificial intelligence algorithms are able to imitate creative processes, compositions, and visual aspects, there is a corresponding rise in concerns around copyright infringement and originality in photography. Expert photojournalists are required to manage the difficult challenges of copyright that are related with content that is created by artificial intelligence, as stated by Schastok et al. (2019).

Important Developments In Ai & Digital Photography

The region has reaped major benefits from the development of artificial intelligence and digital photography because of these breakthroughs. The following are some examples of these advancements: algorithms for image processing that are powered by artificial intelligence; intelligent autofocus systems; high-resolution image sensors; and post-processing approaches such as image style transfer (IST). One of the most notable characteristics of modern digital photography is the technological advancements that have been made in high-resolution picture sensors. Because of the higher pixel density of these sensors, it is possible to capture images that are both sharper and more detailed. According to Savela and Toivanen (2015), developments in image sensor technology have resulted in the production of 100-megapixel cameras, which have enabled photographers to reach a level of detail that was previously unattainable. In digital cameras, the use of artificial intelligence technologies constitutes a big step forward. The deployment of artificial intelligence algorithms is now involved in the process of refining a variety of factors of improving picture quality. According to Daftry (2019), intelligent autofocus systems are utilising machine learning techniques in order to improve the tracking and focus capabilities of moving targets. This leads in photographs that are clearer and sharp, which is especially advantageous when attempting to capture things that are moving quickly. Algorithms that are powered by artificial intelligence have the ability to automatically enhance and improve images. Convolutional neural networks (CNNs) and a variety of deep learning approaches have been utilised in order to develop algorithms that are capable of automatically altering and retouching photographs (Lam, Zhai, & Wang, 2017; Nwafor, et al., 2021). It is possible for algorithms of this kind to successfully improve the visual quality of a picture by adjusting characteristics such as contrast, lighting, and colour balance. Artificial intelligence technology has also been instrumental in facilitating advancements in post-processing procedures. The field of style transfer (ST) is an example of a sector in which artificial intelligence algorithms have been utilised to produce graphics that imitate well-known artists or specific art trends. According to Gatys, Ecker, and Bethge (2016), algorithms have the ability to assess the style of a reference image and then transfer that style to another image by utilising generative adversarial networks (GANs). In light of this, photographers have the ability to capture breathtaking scenes that are affected by a variety of distinctive artistic traditions. Methodologies for image processing that are directed by artificial intelligence. There have been recent developments that have enhanced the capabilities of digital cameras, which have resulted in the creation of new possibilities for photographers and photojournalists.

Difficulties In The Art Of Photojournalism In The Age Of Artificial Intelligence

Photographers & photojournalists in the modern period are confronted with a number of new obstacles as a result of technological improvements and the changing environment of the profession. These problems are comprised of a variety of factors, including but not limited to: technological developments, improvements in hardware and software, copyright concerns, ethical dilemmas, and budgetary constraints. Photographers and photojournalists are confronted with a substantial obstacle in the form of the rapid rate of technological innovation. Individuals are now able to take and share high-quality images while they are on the move because to the widespread availability of smartphones those come equipped with built-in cameras. Bourdieu (2010) says that the proliferation of cellphones has increased competition since individuals now have a better ability to create and share visual material. This has led to an increase in business competitiveness. Furthermore, photographers are under continual pressure to create high-quality work in a timely manner. This pressure is caused by the increased demand for visual material and the provision of news coverage around the clock, which is a direct result of the widespread use of social media platforms. 2018 years, Roberts. In this day and age of artificial intelligence, photojournalists and professional photographers face obstacles brought on by the rapid evolution of software and technology. As a result of the advancements that have been made in artificial intelligence, it is vital for photographers and photojournalists to keep current with the most recent technological developments in order to maintain their competitive edge in their respective fields. The hardware component of this problem is represented by the digital cameras, lenses, and lighting equipment that are continually undergoing modifications. Each consecutive iteration of these tools results in an increase in their intelligence as well as an improvement in the quality of the photos. Dahl (2018) says that in order for photographers to keep up with the latest technological breakthroughs, they need to consistently improve their equipment. In the realm of software, conventional post-processing techniques are under competition from cutting-edge editing tools driven by artificial intelligence [AI].

According to Fernandes (2020), artificial intelligence-driven software is capable of doing activities such as retouching, colour correction, and picture creation, which might possibly render human editors obsolete. In order to include this new technology into their work, photographers and photojournalists will need to modify their methods, which raise questions about the stability of their career prospects in the future. Regarding intellectual property and copyright, there may be difficulties to be encountered. The growth of internet platforms and social media has made it more difficult to govern the unlawful use and distribution of images (Hugenholtz, 2012). Both of these activities have grown increasingly difficult to control. There are several challenges that photographers face, including the protection of their creations and the acquisition of fair recompense. Carpenter (2017) and Onyejelem et al. (2023) note that the proliferation of image-sharing platforms and the widespread use of "free" and "royalty-free" images have both contributed to the worsening of the copyright problem. Because of the advent of digital technology, the line that separates the subjective alteration of pictures from the objective recording of events is becoming increasingly blurry (Ward, 2018). The ease with which photos may be altered and edited using software gives rise to the possibility that the integrity and veracity of visual storytelling could be compromised. The fields of photography and photojournalism are not immune to the difficulties that are inherently associated with ethical concerns. Nachtwey (2013) makes the observation that photographers, motivated by the need to generate material that is clickable or viral, place a higher priority on the pursuit of sensationalistic photos than they do on protecting the privacy and dignity of persons. The collapse of conventional income streams, such as print media and stock photography, may be traced to the rise of digital platforms, which has caused photojournalists and photographers to face substantial financial difficulties (Hugenholtz, 2012). This is a big problem for professional photographers and photojournalists. There is a significant number of freelancers who have challenges in establishing reliable sources of income and negotiating fair prices for their services. The availability of images that are either free or affordable, in addition to the rise in the number of amateur photographers, has further devalued photography as a profession, as Carpenter (2017) points out. "Digital natives" and "digital immigrants" are words that are useful when discussing the level of familiarity and competency that individuals have with digital technology, particularly in regard to photography in this era of artificial intelligence.

According to Prensky (2001), the term "digital native" describes those who have been actively involved in the use of technology throughout their whole lives and have developed the capacity to utilise it without conscious thought. The phenomenon that occurs when people adapt to digital technology later in life may experience difficulty in efficiently accessing and utilising these tools; this phenomenon is referred to as digital migration (Prensky, 2001). The emergence of artificial intelligence in the field of digital photography has contributed to the expanding gap that exists between "digital natives" and "migrants" in the photographic industry. In contrast, digital nomads could have a difficult time keeping up with the rapid breakthroughs in artificial intelligence. It's possible that people would have feelings of confusion and isolation as a result of the ever-evolving landscape of digital photography and the intricacy of technology powered by artificial intelligence. It is possible that as a consequence of this gap, digital natives and digital migrants will exhibit very different levels of photographic expertise and creativity. It is also possible that older photojournalists and photographers who have not been able to adjust to the digital era would have a difficult time finding employment in the present photography industry, which is characterised by its high level of technological sophistication. It is said by Onyejelem (2023) that in order to effectively influence digital natives, one must fully immerse oneself in their digital community, learn their vernacular, and know their surroundings. According to Pate (2023), analogue managers may potentially have terrible results if they were given the responsibility of managing digital technology. The difficulties that arise as a result of this difference provide further evidence of the need of utilising the revolutionary potential of artificial intelligence in photography while simultaneously giving digital migrants with the skills and assistance they need to integrate. Photojournalists and other professionals in the photography industry need to keep them updated on the most recent technology breakthroughs and use AI-powered tools into their work in order to maintain their competitive edge and meet the obstacles that they face. It may be necessary for them to actively seek out chances for skill upgrading and training in order to keep up with the rapidly changing technological landscape.

Future Of Digital Photography & Photojournalism In The Age Of Artificial Intelligence

As a result of the fact that artificial intelligence is on the verge of revolutionising visual narrative, digital photography and photojournalism have a great deal of potential in this age of artificial intelligence. The development of cameras and software that are equipped with artificial intelligence has opened up new opportunities for photography and image processing, which has resulted in an increase in the capabilities of photographers and photojournalists. Both digital photography and journalism have been drastically altered as a result of the introduction of artificial intelligence and machine learning. Capturing, editing, organising, computational photography, and automated picture enhancement are just some of the sectors that enjoy considerable improvements as a result of the technological developments made possible by this technology. The field of photojournalism has reaped major benefits as a result of these technological breakthroughs. The management and analysis of huge picture collections are made easier by these improvements, which also improve the quality of photos and the creative potential they possess. The field of photography is being profoundly influenced by artificial intelligence, notably in the areas of post-processing and picture enhancement. Both Onyejelem et al. (2015) and Hainer (2020) made the discovery that artificial intelligence-driven software, such as Adobe's Sensei and Skylum's Luminar, has the ability to automatically alter exposure, colour balance, and sharpness in order to deliver better image quality. This not only helps photographers save time, but it also improves the shine and uniformity of their work. Photographers may benefit from this situation. In order to assist this procedure, algorithms driven by artificial intelligence are utilised. There is the possibility that algorithms can automatically improve photographs by modifying characteristics such as contrast, colour balance, and brightness in order to get a more appealing visual appearance. Hasinoff et al. (2016) and Chinedu-Okeke (2021) found that HDR+, which is Google's picture enhancement tool, makes use of machine learning algorithms to record and combine several exposures of an image. This results in HDR images that have a greater degree of clarity in both lit and shaded portions of the image. The development of computational photography techniques has been aided by the advancement of artificial intelligence and machine learning. According to Gatys, Ecker, and Bethge (2016), these methods make use of extremely sophisticated algorithms in order to change photos in ways that were not before possible. Take,

for example, the website DeepArt.io as an example. Through the use of machine learning algorithms, it is possible to transfer the creative style of one image to another, therefore emerging new potential for photographers. The applications of artificial intelligence have resulted in substantial progress in a variety of fields, including image processing and object identification. Due to the use of Convolutional Neural Networks (CNN), automated image analysis has seen a substantial improvement in its level of precision. CNN-based models that are able to correctly identify certain items or scenarios have been developed by researchers in order to improve the categorisation of photographs (Krizhevsky, Sutskever, & Hinton, 2012). In addition to this, artificial intelligence is generating new avenues for artistic expression in the field of photography. It has been asserted by Horváth (2019) that artificial intelligence has the capability to transform ordinary pictures into artistic masterpieces, change existing photographs to integrate artistic features, and produce new photographs that mimic the style of established photographers. In this way, photographers are afforded a higher degree of latitude to experiment with their medium and discover what creatively resonates with them.

CONCLUSION

The emergence of AI and other technical innovations has introduced new opportunities and challenges for photography. A beneficial impact of AI is the swift enhancement of digital camera functionalities, including superior image quality, automated editing, and expedited processing times. Photojournalists can capture more significant and timely images as AI systems can analyse vast amounts of visual data to identify important events or trends. This technological revolution in picture synthesis, transmission, and visual communication processes may give birth to several difficulties. Concerns exist over the application of AI algorithms in image editing and selection, potentially compromising the authenticity and integrity of photojournalism. As the volume of digital photos proliferates, photojournalists are increasingly challenged to establish a distinct niche while maintaining their own creative vision. Nevertheless, in this era of artificial intelligence, digital photography and photojournalism hold significant potential, despite these challenges. Photojournalists may augment their narrative abilities and deliver consumers more immersive and captivating visual experiences by adopting AI technology. Photojournalists may allocate additional time to reporting and documenting news stories since AI may automate routine yet essential tasks such as captioning and keyword tagging. It is essential for photojournalists and photographers to continually refine and enhance their skills, especially concerning technical proficiency and ethical considerations, to effectively confront challenges and capitalise on possibilities. Photographers, artificial intelligence (AI) specialists, and media organisations must collaborate to regulate the ethical and transparent application of AI in photography. Despite the challenges posed by the integration of AI in photography, there are significant potential to enhance narrative, efficiency, and audience engagement within the dynamic digital landscape. Photojournalists can surmount these challenges and fully harness the potential of AI to continue documenting the world's most consequential events in a manner that is authentic, truthful, and impactful.

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