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EXPLORING THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE PRODUCTION OF DEEPFAKE CONTENT FOR SOCIAL MEDIA: A TECHNOLOGICAL AND SOCIAL ANALYSIS

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ABSTRACT

Artificial intelligence and deepfakes are relatively new, with people still getting used to technology and a growing trend and desire for audio and visual content—such as self-made movies for events or social media profile building—in both cases. When people want to represent content for users of social media or want to make movies with any website or application that is available, they run into problems. The article details how deepfakes are allowing incorrect information to be transmitted through these kinds of films and how quick corrections like face or body swapping and backdrop removal are now available. This research study's goal is to investigate how artificial intelligence can be utilized to produce realistic deepfakes that everyone can produce and distribute online without requiring any technological expertise. People searching the internet for software to create deepfakes is another major issue; nevertheless, they should also look for information regarding the dependability of these movies.

Keywords: Deepfakes, Viral, Videos, Artificial Intelligence, Misinformation, Swap

1. INTRODUCTION

Artificial intelligence is an example of how technology is advancing and how we can now accomplish anything. Artificial Intelligence is evolving into a computer and problem-solving tool that can assist humans in making judgments (1). The invention of artificial intelligence (AI) and its ensuing applications have revolutionized businesses and opened up new possibilities, changing many parts of our life. Deepfakes, though, are a unique AI technique that has aroused interest and worry. Deepfakes are deceptively altered or fabricated pieces of data, frequently videos, that are produced using powerful AI algorithms. While AI itself can be viewed as beneficial, deepfakes' consequences are complicated and raise a number of ethical, societal, and legal questions. The dual nature of AI and deepfakes is examined in this introduction, along with both the advantages and disadvantages they may bring.

Deep learning, a technology that enables autonomous learning by processing vast amounts of unstructured data such as text, photos, or video, is revolutionizing numerous sectors. From banking to healthcare, communication, entertainment, and the gaming industry (Gordon Scott et al., 2024), AI is reshaping the way we operate (Vejay Lalla et al., 2022). The term 'deepfake' refers to an AI-based media synthesis technology. It involves overlaying human features on another person's body or altering audio to create a realistic human experience. The challenges are increasing as the

population of creators and viewers are equally involved. Due to this, the rise of such applications is readily available online, which brings us to generate reliable sources that can decrease the use of artificial intelligence, creating deepfakes to disgrace, spread disinformation, or lesser the false accusations in the deepfakes.

Deepfake Tools on New Media Table 1: Software's and usage

Softwares	**Description**
Deep Face Swap	Deep learning-based face swapping tool
Face App	Mobile app for face editing and transformation
Face Swap	Open-source software for face swapping
Adobe Photoshop	Professional image editing software
Deep Art	AI-powered face swapping and artistic effects
	Face swapping software with advanced features

Each sector uses artificial intelligence in making videos, which brings focus on deep fakes, which are created using technology and software like face Swap Live, Deep, Facelab, and FaceApp, Which allows you to create face swap and create memes online that can be seen for entertainment purposes (Christopher et al., 2020) as we can see in this figure:

Figure 1 (Source: Instagram) Deepfake

Figure 2 (Source: Google) Original

Users sometimes utilize these tools to spread false information more quickly and widely. For example, two AI-generated fake films featuring Bhartiya Janata Party (BJP) President Manoj Tiwari attacking Arvind Kejriwal's current Delhi administration went viral on WhatsApp. Tiwari speaks in Haryanvi, a Hindi dialect, in one video while speaking in English in the other. Manoj Tiwari's fictitious film was circulated in an attempt to dissuade the large number of migrant workers in Delhi who speak Haryanvi from casting their votes for the opposition political party. According to Bakshi, around 15 million people were exposed to these deepfakes, which were shared among 5,800 WhatsApp groups in the Delhi and NCR area (Finger, L.et al., 2023).

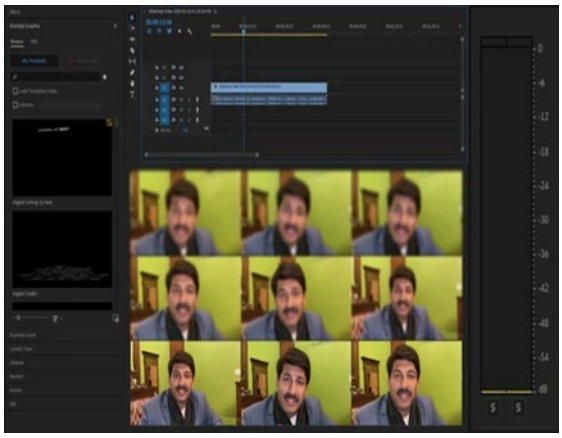


Figure 3 (Source- Website Vice)

2. DEEPFAKE VIDEOS AND ARTIFICIAL INTELLIGENCE

Deepfakes are here to stay, as Lutz Finger rightly notes, and this is primarily because artificial intelligence played a significant role in their construction. Though it can be abused to fabricate alternate realities, this technology is not intrinsically dangerous. It's imperative that we develop management skills for this technology, recognizing its weaknesses, keeping an eye on its usage, and being aware of its potential for abuse. (La Monaga, J. P. et al., 2020).

The misuse of deepfakes, when people use them for marketing purposes, is highlighted in this article. Deepfakes are being used, which raises severe concerns about the legitimacy of digital media by making it harder and harder to tell if the person in the video is real or fake.

In the world of digital media, deepfake videos are a relatively recent occurrence. Artificial intelligence (AI) and machine learning algorithms are advancing technology even though they are still far from realizing their full potential. It is therefore only a matter of time until deepfakes are impossible to spot since they are so realistic. AI and machine learning further complicate the process of video verification, particularly when it comes to using the footage as evidence in court. Complicating matters is the scarcity of research and datasets in this field, including works on deepfake video face modification detection (Wagner, T. L., & Blewer, A. et al., 2019). One must first define "deepfakes" in order to comprehend the current problem. These are videos that seamlessly splice together artificial intelligence (AI) and deep learning graphics, giving the impression of realistic video editing even to the untrained eye. These films have important ramifications because they can serve as accurate portrayals, especially when talking about "fake news." Still, not much attention has been paid to this changing tool, which works with both free mobile apps and expensive editing software. One unsettling example of deepfakes is the superimposition of women's faces onto sexual films (Meta. Et al., 2020).

Deepfakes and artificial intelligence have acquired fame among the youthful age because of their capacity to make sensible and engaging substance with different ways youngsters draw in with deepfake recordings and man-made intelligence: Online Entertainment: Stages like Instagram, and WhatsApp are well known channels for sharing and consuming deepfake recordings. Youthful makers frequently use artificial intelligence fueled devices to make fun and connecting with content, including face trades, voice alterations, and enhanced visualizations.

It's intriguing, how VFX and satirical emulators can be created quite easily because of to the deepfake technology. It allows for the manipulation of Stream labs, and the portrayal of well-known individuals in negative situations. Scientific communication aims to captivate an audience, by combining scientific reasoning with efficient discourse through social networks. It may come as a surprise to those leading a mundane daily life, that the afterlife can be an extraordinary and unexpected experience. With the help of AI technology, AICHIM has revolutionized the way visualization and editing are done. Generating a seamless visual experience that precisely captures spoken descriptions.

AI is used in games and Augmented Reality (AR) to enhance the immersive experience for players, by creating more realistic characters and story realms. With this approach, the AI system can analyze the players' facial expressions and languages, to generate an avatar that precisely matches the on-screen character or an artificial intelligence.

To encourage young people's curiosity in the realm of artificial intelligence and deepfake technologies, can open up a world of possibilities for them. These technologies provide a gateway to a vast array of expertise and opportunities, all easily accessible through the internet. Humanoid language is often linked to specially designed symbols or avatars, for artificial intelligence (AI). AI can be enhanced through human interaction via chats, avatars, or dedicated locations within virtual reality, facilitating virtual collaboration.

Bringing together multiple faces to create a single image and generating entirely new individuals, is a feasible accomplishment. This emphasizes the possible difficulties we may face in today's society due to the rise of technologies such as deepfake videos and Artificial Intelligence. These technologies have the potential to open up a wide range of new possibilities, some of which may unfortunately be used for deceit and personal abuse. Since no one can escape accountability for the mistakes, made by these technologies. It is crucial for every person to grasp the concepts of justice and rights to gain a complete understanding.

Algorithms Implied for Fake Viral Videos

Algorithm 1: Video clip growing method

Input: Candidate set C
Output: non-overlapping video clip selected set S

Initialize Target video length T_L;
Sort all c in C by their average energy value in descending order ;
add the first c from C into S ;
while $C_L < T_L$ **do**
  pick out c whose E_n is highest ;
  calculate the average energy E_{ave} of this c. ;
  if $(E_n * \Theta < E_{ave}) \&\& (C_L + L_{next\_c} < T_L)$ **then**
    add next c from C into S;
  else
    add neighbor fame with E_n and into its c ;
  update Θ;
  check and merge overlapping c in S;
return S;

Figure 4 (Pan et al., 2019)

Delving into the complex realm of video uploading profiles entails an in-depth study of audience numbers and the several aspects (as discussed above), that might impact the classification of a motion picture. This information is conspicuous missed (or ostensibly hidden away from) and unlikely to be disregarded, even by the most perfunctory observer. Content producers, who supply moving images, play a vital part in deciding the total number of views.

3. THE MECHANISM OF AN AI VIDEO GENERATOR

An AI video generator is a software programme that automates video content creation using AI technologies such as machine learning and computer vision. These generators process large amounts of data, such as photographs, movies, and text, to produce cohesive and visually pleasing videos. Consider a world in which video content generation is simple and efficient. AI video editors are at the vanguard of this change, utilizing cutting-edge technologies to speed up the process. (Khan, R et al., 2023)

AI Video Creation Process

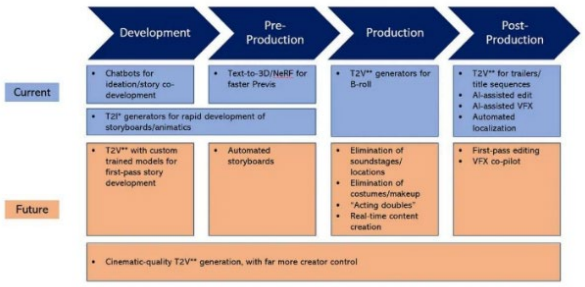


Figure 5

These advanced tools are intended to segment and create incoming data, such as text, photos, or audio, and convert it into polished video content with little human participation. AI video generators can swiftly and efficiently produce high-quality videos by powerful neural networks and deep learning algorithms. (Moaiad Ahmed Khder et al., 2023)

Steps Involved in Process Creation

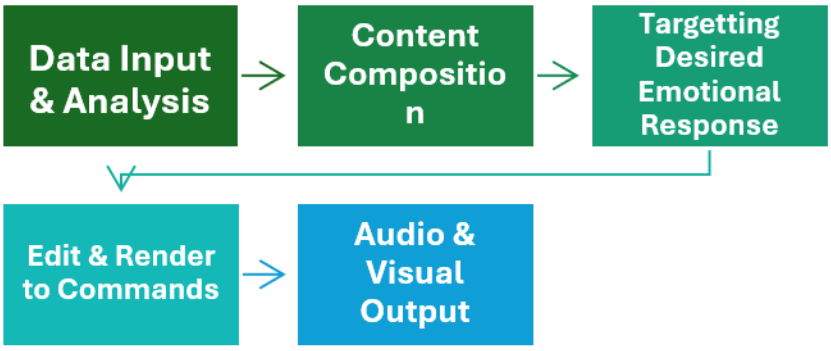


Figure 6

The above-mentioned process gives the opportunity to people to create deepfakes by adding the keywords in the tools like Swap, Deepfake etc. By following the first step of Data Input -the keywords can be given which will be analyzed and that leads to next step to the content will be give a story line as directed focusing on the third step to have desired emotional response which will be further edit & process the given commands and give the audio- Visual output.

Deepfake Videos & AI – A Bane as it brings manipulation

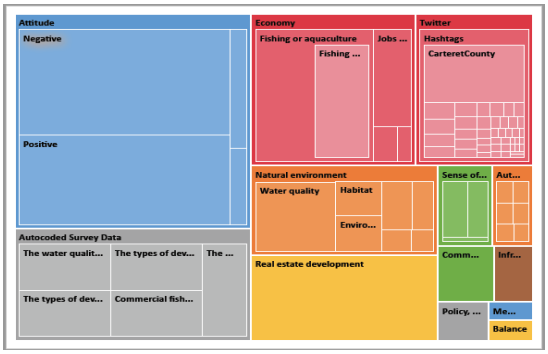


Figure 7

(Bickert, 2020) (8) The emergence of deepfake videos and artificial intelligence has sparked apprehension within the business due to their propensity to modify reality. The rising number of fraudulent accounts and transmission of deceptive information emphasizes the imperative for academics, government, and industry to collaborate in order to successfully address this problem. The peril of deepfake videos, looms large in this era of rapidly advancing artificial intelligence, perilously erasing the distinction between reality and illusion. The sophisticated manipulations discussed, possess immense potential consequences, as they have the ability to target individuals from diverse sectors, including professionals, personalities, and political figures, in an attempt to maliciously influence public opinion (Khan, R et al., 2023).

The fraudulent characteristics of deepfakes reside in their ability to deceptively morph fabricated content into an apparently genuine storyline, capitalizing on our inherent propensity to believe the evidence displayed visually. As knowledge regarding these digital deceits expands, our trust in the visual narrative medium itself diminishes, prompting us to contemplate the elusive quality of truth in an environment that is progressively saturated with fabricated realities (Moaiad Ahmed Khder et al., 2023) . Transforming audio and video content for the purpose of disseminating fakes under the pretense of authenticity has become a significantly simpler endeavor due to the proliferation of state-of-the-art

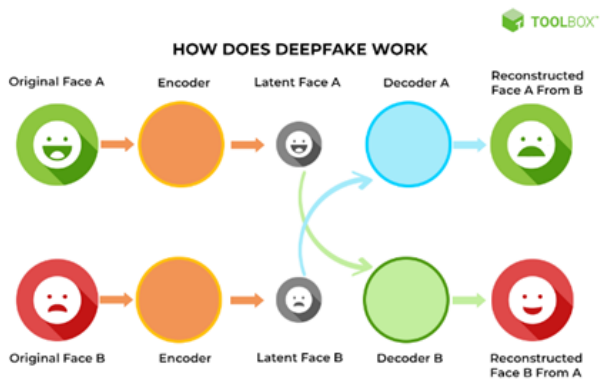
technological instruments. The unrestricted dissemination of false information on social media platforms facilitates the proliferation of counterfeit news labels, which pose a severe risk to the integrity of information which allows undetected infiltration of deception into the digital reality (Cherilyn Ireton et al., 2022). In an effort to reveal the concealed realities encased in digital deceit, scientists have initiated an endeavor to utilize AI-powered solutions, including sophisticated video detection algorithms. These obstacles become the potential of artificial intelligence to counter the deepfake threat becomes a ray of optimism for differentiating authentic content from synthetic versions is present in the advancement of novel classification systems, which could provide some solace in the ongoing struggle against the proliferation of false information within rise of awareness.

4. ARTIFICIAL INTELLIGENCE – BOON TO AWARENESS FOR DEEPFAKES

The power of AI shows the capacity to transform industries including the green economy, healthcare, and tourism, in addition to its ability to identify deepfakes where European companies are currently utilizing artificial intelligence (AI) to improve their goods and services, resulting in more sales, improved customer service, and energy conservation (European Parliament et al., 2023). The effort to eliminate deepfakes is challenging and demands regulatory actions which are essential in bolstering our defenses against deepfakes, the necessitated updates in existing laws to address the legal implications of such digital fakes are also the need of the time. It shows the awareness can be disseminated through educational campaigns aimed at increasing awareness, enabling people to identify signs of deceit and fortifying their resilience against the creation of manipulated content (Aldwairi, M et al., 2018c).

The growing advancements in the technology and merging of AI-driven solutions and human vigilance emerges as a powerful tool against deepfakes if it is used in right manner and offering hope amidst uncertainty. In a time marked by sophisticated digital manipulation, seeking truth becomes more than just a personal pursuit; it becomes a collective obligation, urging us to embrace knowledge and innovation as partners in the ongoing quest for authenticity.

The Process of Deepfake creation



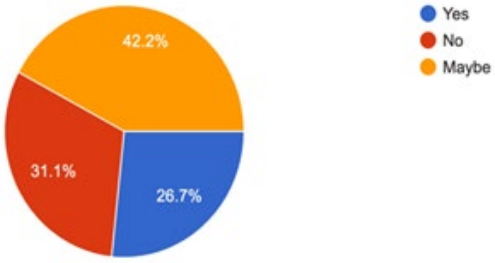
(Spice Work, 2022)

Visual and audio editing with machine learning (ML) has been performed for many years. For example, graphic editing techniques were employed in films to smooth over imperfections, and since the beginning of the internet, people have used image editing software to create memes. Deepfakes are an AI-powered version of this that can be used to mislead users.

Threat actors can utilize deep learning algorithms to target specific characteristics of a person's likeness, such as their face structure or body language, thanks to new technologies such as auto encoders and synthetic adversarial systems. It offers extremely convincing impersonations, which hackers attempt to exploit. The increased reliance of businesses on video-based interactions is projected to inspire attackers to launch deep fake assaults (Times Of India et al., 2024).

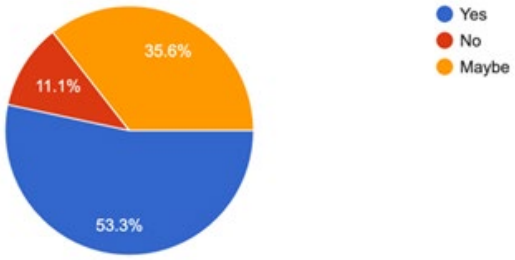
This survey represents.

Do you able to identify easily the difference between fake and real videos you receive?



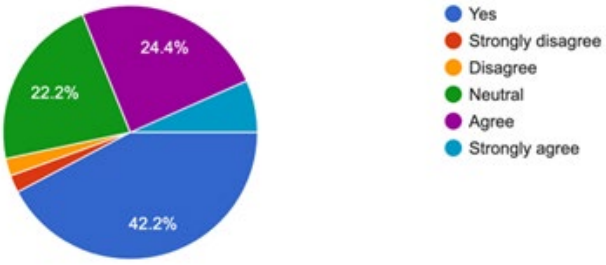
The majority of respondents (42.2%) selected "maybe," suggesting uncertainty regarding their ability to discern the authenticity of videos. While they may possess some knowledge or skepticism, they might not feel fully confident in consistently identifying fakes. On the other hand, a slightly larger percentage (31.1%) expressed a belief that they cannot differentiate between fake and genuine videos they encounter. This indicates that a considerable portion of respondents may lack the expertise or resources required to assess video authenticity effectively. A minority (26.7%) claim to be able to easily distinguish between fake and real videos they receive. This suggests that a small portion of people may possess the skills or knowledge necessary to identify manipulated or synthetic videos.

Do you believe Artificial Intelligence is making the source of entertainment easy?



A majority (53.3%) of people believe that Artificial Intelligence (AI) is making the source of entertainment easy. A significant percentage (35.6%) of respondents answered "maybe" which shows that they are unsure about the overall impact of AI on entertainment or may perceive both positive and negative aspects. This minority (11.1%) of respondents believe that AI is not making the source of entertainment easy and their view may stem from concerns as AI is potential to replace human creativity and artistic expression, privacy and ethical issues related to data usage, or the fear of AI automation leading to job losses in the entertainment industry.

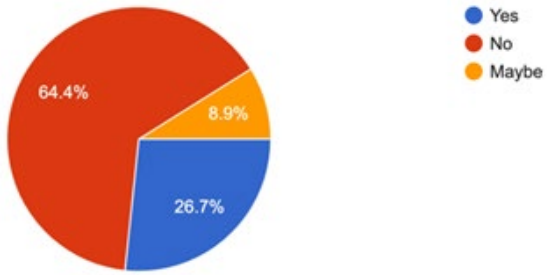
Artificial intelligence generates fake accounts and create misleading behavior?



It represents that a significant percentage (42.2%) of respondents believe that artificial intelligence (AI) can generate fake accounts and create misleading behavior. This indicates a concern among a considerable portion of the respondents regarding the potential negative impact of AI in this context. AI-driven systems, such as chatbots or social media bots, can be used to create fake accounts, spread misinformation, manipulate public opinion, or engage in other forms of deceptive behavior. A small percentage strongly disagrees (2.2%) or disagrees (2.2%) this shows that these respondents do not believe AI is responsible for generating fake accounts or misleading behavior, or they perceive the issue to be less prevalent or impactful. A moderate percentage (26.1%) agrees and a smaller percentage (6.5%) strongly agrees that AI is involved in generating fake accounts and misleading behavior. These respondents share the concern expressed by the majority group and believe that AI can play a significant role in facilitating deceptive activities.

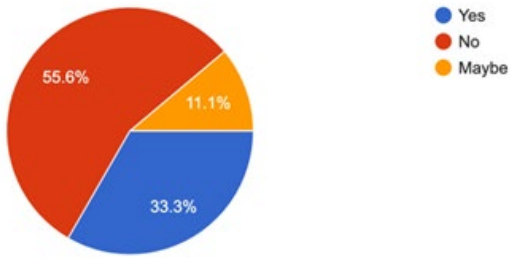
A substantial percentage (21.7%) remains neutral, indicating that they either don't have a strong opinion on the matter or require more information to form a definitive stance.

Do you immediately check the videos from any credible source after receiving the video?



A minority (26.7%) of respondents appear to indicate that they review fake viral videos from trustworthy sources shortly after receiving them. This implies that these people prioritize validating the authenticity or legitimacy of films they come across by seeking information from reliable sources. The majority of respondents (64.4%) said "no," indicating that they do not immediately verify the fake viral videos from reliable sources after receiving them & due to a lack of awareness about the significance of verification or personal trust in the source of the video. A lesser proportion (8.9%) indicated uncertainty or a case-by-case approach. Based on the context, nature of the video, or their level of skepticism, these folks may consider examining videos from reliable sources.

Do you immediately check the videos from any credible source after receiving the video?



A minority (33.3%) of respondents guarantee to check recordings from believable sources following getting them. This shows that these people focus on confirming the legitimacy or dependability of recordings they go over by looking for data from confided in sources. A larger part (55.6%) of respondents replied "no," demonstrating that they don't quickly take a look to check fake viral videos from believable sources subsequent to getting them which could be because of different reasons like time requirements, absence of mindfulness about the significance of confirmation, or individual confidence in the wellspring of the video. A modest rate of (11.1%) replied "perhaps," demonstrating vulnerability or a made to order approach. These people should seriously mull over checking recordings from dependable sources in view of the unique circumstance, nature of the video, or their degree of suspicion. The numbers on social media platforms are

increasing of platforms like WhatsApp (29.8 percent), Instagram (17.8 percent), and Facebook (15.8 percent) emerged as essential conductors for the dispersal of fake information (Times Of India et al., 2024).

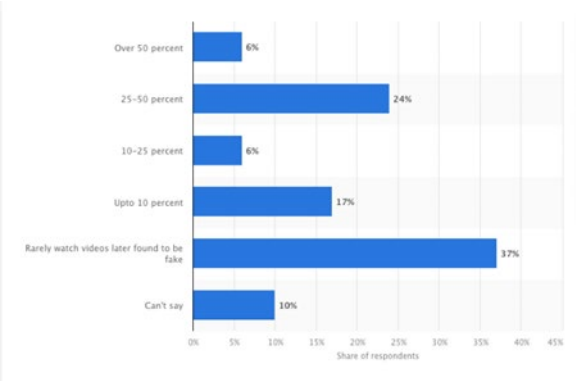


Figure 9

(Statista, 2023)

5. CONCLUSION

In the year 2019, Atanasova et al. The verification of postings on platforms that are available for the fact-checking work is something that we need to focus on. Additionally, we need to take into consideration the authenticity of the response in relation to the entire question-answer loop in which it occurs, in addition to other posts that are relevant from genuine and reliable sources.

The identification and verification of information, particularly with regard to contextual features, plays a significant role. In order to correct the Deepfakes, some of the software that is available online includes Wrapping Up, Google Reverse, and Microsoft's Video Authenticator Tool. These are some of the platforms that are available (Mubashara, A et al.,2023), There is a widespread acknowledgment of the potential for AI to contribute to the creation of fake accounts and misleading behavior (Goled, S. et al., 2021). However, it is important to note that the intentions behind such activities can vary, and AI itself is a tool that can be used for both positive and negative purposes. Efforts to develop safeguards, detection mechanisms, and responsible use of AI are necessary to address these concerns and mitigate the negative impact of AI-generated misleading behaviorSeveral articles are available, and given the recent expansion of this technology, those papers may provide additional information on deepfakes and recommend alternative techniques for combating them. This data was gathered from public sources, specifically internet news media sites (De Curtò, J et al., 2022).

The impact of artificial intelligence (AI) and deepfakes can be seen as both a boon and a bane, depending on how they are applied and. AI controlled has significantly advanced a number of industries, including healthcare, transportation, and entertainment. It might increase production, accuracy, and efficiency, which would be good for society as a whole. AI-powered technology can also help with activities that were previously difficult or even impossible for humans to complete and it will be dangerous when the usage of the AI is overpowered the human work tendency and lead to misinform the society as a whole as the credibility of data from ample sources will decrease the believability of the people. Deepfakes, which are artificial intelligence-generated and manipulated are rising questions that how deepfakes can be deliberately employed to disseminate false information, malign people, or falsify evidence. Trust, security, and privacy are jeopardized. The ethical and legal issues that need to be addressed due to the capability of convincingly altering or fabricating video and audio content.

The rise of deepfakes emphasizes the critical need for responsible development and strong laws, even while AI presents tremendous potential for advancement and innovation. In order to maximize the advantages and minimize any potential drawbacks of these technologies, it will be essential to strike a balance between the beneficial applications of AI and reducing the hazards connected with deepfakes.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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