

Deepfakes Technology Using Artificial Intelligence

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ABSTRACT: In spite of the fact that controls of visual and hear-able media are just about as old as media themselves, the new entry of deepfakes has denoted a defining moment in the formation of phony substance. Fueled by the most recent mechanical advances in man-made reasoning and artificial intelligence (AI), deep fakes offer computerized methods to make counterfeit substance that is increasingly hard for human spectators to recognize. The prospects to hoodwink are unending including controlled pictures, recordings, and sound and associations should be ready as this will without a doubt have a huge cultural effect. In this article, I will cover working meaning of deepfakes along with an outline of its fundamental innovation. We order distinctive deepfake types and distinguish dangers and freedoms to assist associations with pondering the eventual fate of deepfakes. At last, I trust that our general public can be more ready to counter deepfakes as we appreciate deepfakes.

KEYWORDS: (Artificial Intelligence) AI, Deep Fake, Neural Network.

I. INTRODUCTION

Misinformation has now become a concern throughout the world, threatening political discussion, humanity, and the direct democracy systems. Duplicate news refers to material that is created to deceive the common people in the form of falsehoods. False info travels quickly via the media, affecting a large number of customers. Similar only to Fb and twitter, one out of every five Web users gets their money through Moment only to Fb and twitter is YouTube. With the rise in popularity of video comes the need for tools to verify the integrity of media and news information, since ingenious improvements allow for persuasion control over video. Given the ease with which deceit may be acquired and transmitted via web-based it is getting increasingly impossible to discern what to trust as a result of the proliferation of media channels, which has bad effects for educated management, among so many other reasons. Beyond a doubt, we presently live in a "i.e. pre" age, as someone else has termed it, characterized by electronic misinformation as well as data warfare fueled by nefarious individuals operating phony data projects to manipulate public perception [1]–[4].

Contemporary technology that has made it easy to create "deepfakes," loopy songs including face transactions that leave no trace of control. Deepfakes are the consequence of

person argumentation (software understanding) programs that combine, connect, replace, and impose images and video clips to create phony documents that really are genuine. Deepfakes innovations may, for example, create a humorous, vulgar, or revolutionary video of a humanoid stating whatever the person whose image and voice is included says without their agreement. The extent, size, and sophistication of the invention in consideration are the tournament variables of "fake news", since virtually everyone with a PC may produce fraudulent Actual findings that are primarily ambiguous. The pattern has evolved away from officials, journalists, media personalities, and dancers whose characteristics were combined into sexual recordings in past false news. Deepfakes will most likely be used for rape and sexual assault, torturing, fake video footage in courts, political damage, and terror mongering intended advertising, blackmail, monopolization, and bogus news in the future. While disseminating false data is straightforward, correcting the record and combating deep fakes require more effort. To combat deep fakes, we need to understand them, the motivations for their existence, and the creativity behind them. Despite this, in-depth investigation has recently tended to propagate deception in internet media. Deep fakes were first discovered on the internet in 2017, therefore there isn't much in the way of meaningful literature on the subject. Following that, this study will discuss what machine learning algorithms are and who makes them, the benefits and risks of deep fake innovation, a few examples of existing deep fakes, and how to combat them. The evaluation dissects several news reports on deep fakes from mainstream media sites in this way. The data anytime to the collection. the early written focuses on false news / collection process both by providing a broad overview of social bots and by introducing the topic into a scholarly conversation that also acknowledges options for legislators, commentators, pioneers, and the like to combat deep knockoffs [5]–[7].

The article is coordinated as follows. After the presentation, the review clarifies information assortment and news story examination. The concentrate then, at that point, advances four segments that audit deepfakes, what the expected advantages of deepfake innovation are, who the entertainers associated with delivering deepfakes are, and the dangers of deepfakes to our social orders, political frameworks, and organizations. From there on, two segments give instances of deepfakes and examine four possible systems to battle

deepfakes. At long last, the review finishes up with suggestions, restrictions, and ideas for future exploration.

A. What Are Deep fakes

Deep fakes are this over videos meticulously manipulated to show persons speaking and doing behaviors that have never actually happened. They're a blend of "tensor flow" and "counterfeit information." Deep impersonators rely on neural networks that analyze large amounts of data to determine out how to replicate a person's appearance, idiosyncrasies, intonation, and mannerism. This connection entails putting two people's footage through a deep learning computation in order to get them to switch faces Deep fakes, at the beginning of the day, rely on facial planning technology and artificial intelligence to transform the essence of a person in a video into the essence of someone else. Deep fakes were exposed in 2017 that whenever a Reddit user shared recordings of celebrities in risky sexual situations. Deep fakes are difficult to spot since they use real film, have real sound, and are improved to seem like the real thing. Highly disseminated via internet media. As a result, many viewers believe that perhaps the film their see now is legitimate. Deep fakes target online media stages, where tricks, reports, and falsehood Buyers would often go also with group, therefore the message will spread successfully. Simultaneously, a developing situation the 'infocalypse' leads individuals to assume that consumers can't convince any data unless it comes from their social circles, such as coworkers, acquaintances, or family, and verifies their present ideas. To be honest, many individuals are susceptible to something which validates the beliefs. Present viewpoints, even if they suspect it is false. Because low-cost technology, such as effective graphics handling units, is widely available, simple fake ones, that is, better value tapes with slightly doctored actual material, are now everywhere. Program for creating high-quality, realistic deep falsehoods for misinformation is becoming more open source. This enables customers with just rudimentary technical skills and no creative expertise to approaches flawlessly modify records, trade identities, change looks, and merge talk. Figure 1 shows the image comparison of the deep fake technology in the system of the user profile in the system.

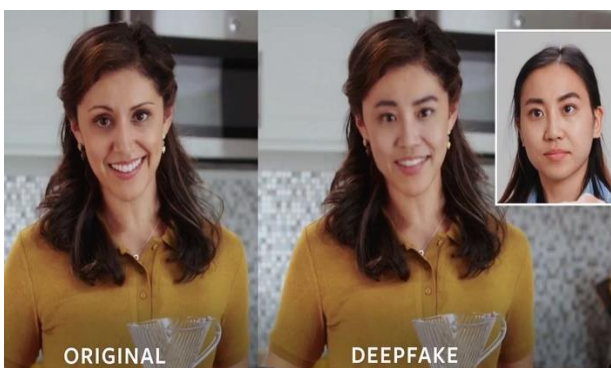


Figure 1: Illustrated the Image altered using deep fake technology.

Deep fakes are the product of a Convolution Neural Channel, or two fuzzy inference organizations working together to create genuine-looking media. These institutions, referred to as 'the generators' and 'the differential amplifier,' are created from a lot of pictures,

recordings, or sounds that are very much the same. The character eventually attempts to come up with fresh instances to fool the following organization, which is attempting to determine if the social technology it is seeing is legitimate. They motivate one other to develop in this manner. A GAN may look at a large number of images Develop a new picture that looks like both of those photographs and it's not an absolute reproduction of any of the above. GANs will be able to exchange heads, complete bodies, and voices sooner than expected, based on less data. In spite of the fact that deep fakes generally require countless professionals have successfully nurtured a way to build a fake by guaranteeing the security of just one photograph, for as a photograph, to generate a reasonable fraud, you may create a movie [8]–[11].

B. How Deep fakes Are Created

The fundamental fixing in deep fakes is AI, which has made it conceivable to create deep fakes a lot faster and for a lot less money To create a deep viral A maker would then train a learning algorithm using several long stretches of genuine video clips of the individual to give it a good "expertise" of what the figure appears from multiple viewpoints and illuminance. Then, using graphical skills and the planned choreography, they'd emblazon a duplicate of the personality around on a separate artist. While the expansion of computer-based intelligence makes the cycle quicker than it at any point would have been, it actually sets aside effort for this interaction to yield an acceptable composite that puts an individual into a totally anecdotal circumstance. The maker should likewise physically change large numbers of the prepared program's boundaries to stay away from obvious blips and relics in the picture. The interaction is not really direct. Many individuals expect that a class of profound learning calculations called generative ill-disposed organizations (GANs) will be the primary motor of deep fake's improvement later on. GAN-produced faces are close difficult to tell from genuine countenances. The primary review of the deep fake scene gave a whole area to GANs, recommending they will make it feasible for anybody to make modern deep fakes. GANs are difficult to work with and require a gigantic measure of preparing information. It takes the models longer to create the pictures than it would with different strategies. Also, generally significant—GAN models are useful for orchestrating pictures, yet not so much for making recordings. They struggle protecting worldly consistency, or keeping a similar picture adjusted starting with one edge then onto the next. The most popular sound "deep fakes" likewise don't utilize GANs. At the point when Canadian simulated intelligence organization Dessa (presently claimed by Square) utilized the moderator Joe Rogan's voice to absolute sentences he never said, GANs were not involved. Indeed, the vast majority of the present deep fakes are made utilizing a star grouping of computer-based intelligence and non-man-made intelligence calculations.

II. LITERATURE REVIEW

Aldwairi et al. in their study suggested that the Survey from some different documents is taken to get information about existing works. In this paper authors introduced the influence of deepfakes in media how they influence the general public their ideas about people or certain things and also provide brief idea about the detection technologies

which can be used to detect fake news and make people aware about it. They proposed the technologies which are used in the creation of fake content, author discusses in brief about the neural networks which are used in the creation of fake media, author also discusses in detail about neural network and the A.I which is used in it. Authors gave an exploration of image features, ethics, and skewed perspectives representation, author also introduces challenges that has arises after the arrival of deepfakes author shows concern on the usage and the influence of deepfakes and how they are affecting the general life of people and negative usage of deepfakes also covers the precautions that people need to take to stay safe from the negative influence of deepfake. The authors in this paper present a review on deepfake detection challenges, the dataset it uses the authors also covers the advantages and disadvantages which deepfake proposes it also covers the survey of high and low quality deepfakes created by GANs and present two facial modification algorithms [12].

Cybenko et al. in their study gave an overview review about deepfakes, about how deepfake came in creation how their usage got increased, what are deepfakes, how they are created, author also discusses the type of deepfakes as well as their detection techniques, paper also compare the quality and usage of deepfakes using different techniques and gives a brief conclusion about intron paper explores global journalistic discussions of deepfake applications based on the A.I. technology. Authors discussed about how deepfakes are used in fake journalism and also discusses the involvement of deepfakes in crimes such as harassment of women online and other ways in which deepfakes are getting used negatively, the paper then provides broader practical and theoretical views about AI content and the regulations it have in digital culture [13].

Wagner et al. in their study suggested that in this paper author discusses if the deepfake technology is next digital weapon on not? In introduction part author covers what is the deepfake and how does it work, they have discussed deepfake accessibility and general platforms like app which are used to create fake content then the dangers of deepfake and corresponding consequences, how deepfakes is used to mislead court and evidences and how deepfakes are used in politics and military operations. Authors discussed the different technology and network used in deepfake creation, author explain in details about how GANs and auto encoder works, the types of databases deepfakes are using, the difference between low quality and high quality deepfakes as well as their detection techniques, author also representing the survey and the rate of deepfakes creation which are increasing day by day [14].

Research Questions

- How deep fake technology effect the system?
- How artificial intelligence is affecting the system in the technology?
- How neural network is giving advantage to the artificial network?

III. METHODOLOGY

A. Design

Our examination was parted into two significant parts, a hypothetical and a viable part. The hypothetical one depended on a pilot concentrate on where we went through the significant security concerns and significant data with

respect to Deepfake and Profound neural organization just as finding proper venture scope supporting the objective of the undertaking. The reasonable part is to really get to know the advancement devices and conditions (e.g., Autoencoder, DNN) and dive profound into the Profound figuring out how to find out more about deepfake to see how Deepfakes function just as its Recognition Strategies

B. Instrument And Sample

The super innovative fixing in making deepfakes is Profound Neural Organization which is a ML procedure from artificial intelligence that can be utilized to prepare DNNs suggestive of neurons in the cerebrum. DNNs comprise of an enormous arrangement of interconnected fake neurons, regularly alluded to as units. Similar as neurons in the cerebrum, every unit itself plays out a somewhat straightforward calculation, and all units together can perform complex nonlinear tasks, for example, perceiving a particular individual from seeing pixels on a screen in the cerebrum, data stream is controlled by the strength of the associations among neurons. To improve at a given undertaking, the cerebrum's learning systems work on these associations, reinforcing or debilitating them as needed to further develop our errand execution over the long run. Similarly, the calculations of DNNs are directed by the strength of the association of their separate units. These associations, too, need to possibly be prepared. Undeveloped DNNs have arbitrary associations among units, which will prompt irregular data course through the organization and subsequently irregular result. For an undeveloped DNN working on pictures of faces, all looks are in this way self-assertive and aimless, and effectively distinguishing a look would just occur by some coincidence. A prepared DNN, then again, will have further developed the association strength of the units and took in the basic attributes of a face. Figure 2 discloses the image generating system using auto encoder the system is quite useful for the system in the effective manner the auto encoder in the colour in the system.

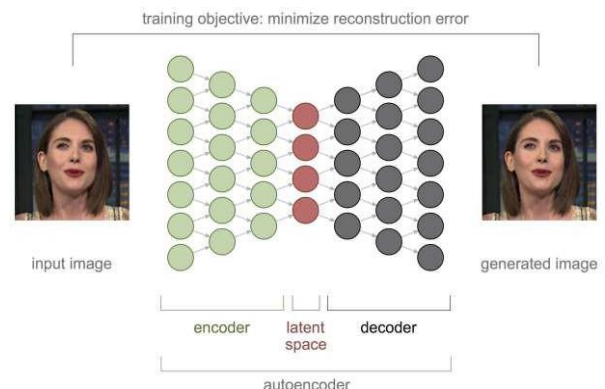


Figure 2: Illustrated The Image Generating Using Auto encoder.

The objective of profound learning is to refresh the association qualities or loads in DNN phrasing to enhance the data stream and result. This logically drives the organization result to limit mistakes by characterizing how the organization ought to in a perfect world react in an assortment of known conditions. For instance, when shown realized information pictures, DNNs can be prepared to change their loads to lessen recognition blunders so they can

ultimately distinguish and appropriately identify objects in reality, gauge three-dimensional profundity from 2-D pictures, and perceive digits and letters on bank checks, tags, tax documents, letters, etc. While the preparation cycle can prompt remarkable errand execution, it is information hungry. The present profound learning requires a huge number of association loads to be realized, which thusly requires enormous arrangements of preparing information. That is the reason predominantly superstars are focused on by deepfakes: on the grounds that a broad library of pictures and recordings as of now exists to prepare the organizations.

C. Data Collection

a. Generative Adversarial Network

GANs, or generate acoustic networks, are a solution to deal with generated processes using deep learning approaches like as convolutional neural networks. In AI, procedural presentation is a single learning job that entails detecting and discovering male dominance or examples in new data so that if the algorithm would be used to produce or output further designs based on the original collection. Figure 3 shows the work model of the random input vector role model in the system.

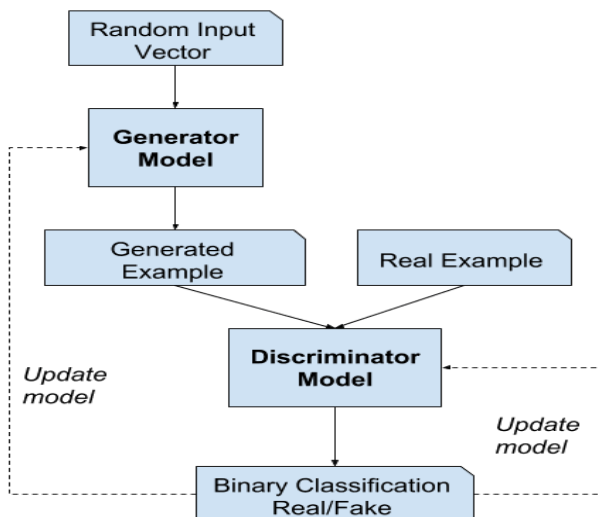


Figure 3: Illustrated The Gans Work Model In The System.

GANs are a creative approach of building a fuzzy inference system by phrasing it as a managed classification algorithm with two independent models: the generator version, which users train to create novel arrangements, and the deep connected framework, which attempts to classify the data. Models as legitimate (from the area) or sham (not from the area) (created). The two forms are ill-disposed and generated together through a lose-lose position until the fully convolutional model is deceived a couple of moments, indicating that the generators model is providing plausible models. GANs are an incredibly interesting and rapidly developing specialty that builds on the promise of learning algorithms in their ability to create satisfactory models throughout a wide range of issue interiors, most notably in image perception tasks, such as converting seasons to cold weather the day or to nocturnal photos taken, and in trying to produce hyper realistic pictures of items, sequences, and persons which even persons can't even tell are insincere.

b. Data Analysis

Deep fake innovation works with various potential outcomes in the instruction space. Schools and instructors have been utilizing media, sound, video in the homeroom for a long while. Deepfakes can assist a teacher with conveying imaginative examples that are undeniably more captivating than customary visual and media designs. AI-Produced engineered media can resurrect authentic figures for a seriously captivating and intuitive study hall. A manufactured video of re-establishments Having the words and vision of a historical person may have a greater impact, motivation, and would be a better learning tool. JFK's purpose to stop the pandemic, for example, was speech, what was seldom given, was duplicated using artificial voice combining his intonation of talk style would surely inspire students to think about the problem creatively. Complicated life components, contemporary equipment, as well as humanoid robot live processes modern undertakings can be displayed and mimicked in a blended reality world to instruct understudies and work together utilizing Microsoft HoloLens. Inventive utilization of manufactured voice and video can expand generally speaking achievement and learning results with scale and restricted expense [15], [16].

IV. DISCUSSION

For numerous many years, Hollywood has utilized very good quality CGI, VFX, and SFX advancements to make fake yet acceptable universes for convincing narrating. In the 1994's film, *Woods Gump*, the hero meets JFK and other authentic figures. The making of the situation and impact was cultivated utilizing CGI and various methods with a great many dollars. These days' modern CGI and VFX innovations are utilized in films to produce manufactured media for recounting a charming story. Deep fakes can democratize the expensive VFX innovation as an integral asset for autonomous narrators for a portion of the expense. Cultural and amusement organizations can utilize deepfakes for imaginative purposes. Dalí Gallery in St. Petersburg, Florida, made a presentation called *Dalí lives*, resurrecting him utilizing deepfakes for guests to collaborate and take a selfie with surrealist painter Salvador Dalí. Additionally, Samsung's computer based intelligence lab in Moscow rejuvenated *Mona Lisa* by utilizing Deepfake innovation. In the video gaming industry, artificial intelligence produced designs and symbolism can speed up the speed of game creation. Nvidia demoed a mixture gaming climate made by deepfakes and is chipping away at offering it for sale to the public soon. Audio narrating and book portrayal is another great use instance of engineered voice. The writer's manufactured voice text style can be utilized to make the writer's book's sound organization. Organizations can utilize manufactured voice-overs of similar entertainer in various dialects to widen the range of their substance. The innovative voice innovation to execute the above situations should be utilized morally and responsibly with a vigorous assent system as it straightforwardly affects the work and office of a voice craftsman [17]–[20].

A. Autonomy and Expression

Chemically synthesized media may assist fundamental liberties demonstrators and commentators in remaining anonymous under oppressive and harsh institutions. For local opinion pieces and activists, using innovations to inform about atrocities on traditional or internet news may be incredibly interesting. Deepfakes may be used to mask

voices and expressions in terms of protecting them. Deep fakes might be utilized to make symbol encounters for people online for self-articulation. Individual advanced symbol gives independence and can assist people with broadening their motivation, thoughts, and conviction and empower self-articulation, which in any case might be hard for a few. People experiencing specific physical or mental handicaps could utilize manufactured symbols of themselves for online self-articulation. Deep fakes can give people new apparatuses for self-articulation and joining in the web-based world. Deep Compassion, a UNICEF and MIT project, uses profound figuring out how to get familiar with the qualities of Syrian areas impacted by struggle. It then, at that point, recreates how urban communities all throughout the planet would look in the midst of a comparable clash. The undertaking made engineered war-torn pictures of Boston, London and other key urban areas all throughout the planet to assist with expanding sympathy for casualties of a fiasco district. There are voice innovation new businesses that will make engineered voice as another sort of deprivation treatment or assist individuals with recalling the perished and associate with them [21]–[23].

B. Public Safety And Digital Reconstruction

Reconstructing the crime location is a criminological science and craftsmanship, utilizing inductive and insightful thinking and proof. Artificial intelligence Created engineered media can assist with remaking the scene with the interrelationship of spatial and transient curios. In 2018, a group of common specialists utilized phone recordings, post-mortem examination reports, and reconnaissance film to recreate a virtual crime location.

C. Innovation

Data and artificial intelligence are helping in advanced change and robotization in numerous ventures. Deepfake or computer based intelligence Created Engineered media is turning into an establishment to draw in clients and offer customized benefit. Reuters showed a completely computer-based intelligence Created deepfake moderator drove sports news rundown framework to assist with customizing news at scale. In the design retail business, deepfakes can assist with transforming clients into models by practically evaluating the most recent clothing and accessories. An invigorating application will catch clients' faces, bodies, and surprisingly miniature peculiarities to create a deepfake and evaluate the most stylish trend patterns. Information Lattice, a Japanese man-made brainpower organization, made a man-made reasoning motor that naturally creates virtual models for promoting and style. The deepfake approach gives the capacity for brands to have a virtual preliminary space for clients to encounter items prior to getting them. Retail brands can likewise draw in clients at home by making a computer-based intelligence produced blended reality world to attempt, outfit, and beautify their space [24], [25].

V. CONCLUSION

Deep fakes can be used in certain and negative ways to control content for media, redirection, publicizing and tutoring. Continuously our lives are being gotten through online media and this substance can be used to get ready DNNs, with or without our assent. Deepfakes are not wizardry, yet rather are conveyed using strategies from

mimicked insight that can create fake substance that is significantly According to our poll, deep fakes pose a significant threat to democracy, the political process, and associations because they put the squeeze on authors who are trying to distinguish between true and fake news, and they poison public health by sabotaging public welfare dispersing proclamation that messes with racing, undermines resident faith in specific subject authorities' facts, and raises virtual safety issues for individuals and alliances, and nuances relevant threats via instances of existent and potential deepfakes vocation. There still are, from the other contrary, positive points and uses which are very important and obliging to the overall population and many fields.

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