



Seeing is not believing: AI face based on deepfake technology

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Abstract. With the advent of AI + 5G era, the application field of artificial intelligence continues to expand. AI face changing based on deep fake technology- - super-realistic fake video using face exchange- -has become more extensive and easy to create, challenging the old concept of "seeing is believing". In the era of intelligent media, the audio-visual manipulation that destroys the authenticity of digital images has become a reality, and the deepfake technology of artificial intelligence is profoundly changing the logic of social media and human life. This paper will discuss the use of AI face changing in social media and the ethical risks behind the technology from the user perspective.

Keywords: deepfake; AI face change; use motivation; ethical risk.

1 Introduction

In March 2023, Elliott Higgins, the founder of the Dutch-based investigative news reporting website, forged dozens of images of Trump's arrest and uploaded them to social media. The picture shows Trump being pinned to the ground by heavily armed New York riot police. These pictures were shared and liked by tens of thousands of times in a very short period of time. However, these images are truly "deepfake" products. These photos have made many netizens believe that it is true, causing a great social impact.

Today, deepfake technology is becoming more mature. In the era of artificial intelligence, massive data, super computing power and constantly innovative algorithms provide a cradle for the rapid development of AI face changing technology. Some difficulties in the past, such as extracting the facial information of face-changing objects and the transformation of training models, can be completed through massive database and AI deep learning. A large number of AI face changing videos can be seen on short video platforms such as TikTok and B stations. When technological accessibility is no longer a problem, it brings more common use, the belief in visual truth is fading, and policy regulation and legal management are more difficult. The creation and manipulation of synthetic images have evolved rapidly, causing serious concerns about their effects on society. ^[1]In the new context, what is the motivation of using AI face changing technology, and what are the ethical risks, are the main issues discussed in this paper.

2 Deepfake

The so-called deepfake, namely deep learning and fake, refers to the process of large sample learning, combining different individual sounds, facial expressions and body movements together, to automatically generate realistic speech, pictures or images. With the increasingly mature technology, the profound synthetic audio-visual content can almost achieve the effect of "fake". Therefore, this technology is often used to create "non-existent people", fabricate "non-existent events", or graft one person's behavior and speech on another; without the aid of professional means, it is almost difficult for the recipient of the information to distinguish the authenticity of such audio-visual content.

AI face changing technology is a deepfake technology based on face image recognition. It comes from the editing of face images by Photoshop technology. Later, with the support of deep learning technology, the technology that identified the facial features of the target object and then "grafted" them to the imitated object was called face deepfake technology. AI face changing is the most commonly used application in deepfake technology. Therefore, most domestic scholars start with face changing technology and use the case of "ZAO" software to explore the risks and ethical challenges brought by deep counterfeiting technology to human society. But few studies have extended the research on deepfake technology from the perspective of the user can feel. Empirical studies examining if and how deepfakes would evoke news skepticism and discredit social trust in societies with low levels of digital literacy are limited.^[2]This study is an online ethnographic study lasting half a month, and we chose to interview 10 users who had used AI face change on the TikTok platform.

3 The Use Driver of AI Face-Changing Technology

3.1 Easy to Operate, Strong Accessibility

The AI face-changing technology is a deepfake technology that is closer to the ordinary people, and the so-called "one-click generation" greatly reduces the threshold of entry. According to the New York Times website, in March 2023, a picture of Catholic Pope Francis wearing a white down jacket appeared in Western social media, and the photo spread at a rapid rate. In Western culture, religion and politics, an 86-year-old pope is inappropriate. In fact, the image, which went viral on the Internet and social media, was automatically generated and uploaded by a 31-year-old Chicago construction worker with the help of artificial intelligence tools. This cook is only an ordinary working worker, and have no advanced knowledge background, its do this thing is only spontaneous.

"I think now AI in face technology is too convenient, before I was on the TikTok chance you brush to other people's AI in face video, the above display can take the same, I tried, really is only upload a photo of yourself can perfect in face, and more than the previous two years of the technology mature, looks very natural, not false."(A)

It's not just face changes that can be generated with one click. In June 2019, Deep-Nude, an app called "One-button strip," became popular on social media, with users just having to upload a photo and generate a very realistic "nude photo" in 30 seconds.

With the lowering of the threshold of deepfake technology, the use of this technology is no longer limited to the operation environment of artificial intelligence laboratory. For ordinary people, the accessibility is stronger. Some non-professionals can also use computer systems to conduct deepfake, leading to a surge in the number of deepfake audio and video.^[3]

3.2 A Self-performance Under Gaze Perception

The desire to express themselves, the desire to imitate and the desire to be identified are human instinct.^[4] People are always eager to break through the existing circle layer and experience the bright life of celebrities and dignitaries. Through face change, ordinary users perform by themselves, and experience the sense of honor and pride of being a star. Therefore, among the materials provided by the AI face change software, some traffic stars are given face change the most times.

"AI face change can let me see a different myself, like before I will use the software to change the star's face into my own face, it is quite beautiful. Because I may not be as good as the star posture and makeup, so I am usually ugly, I suddenly feel that I am also very good-looking. Once I posted a photo of my face change under the AI face change video and got a lot of people's praise and praise. Unfortunately, it was fake, but I thought it was interesting anyway."(B)

To some extent, AI face exchange provides technical support and ability compensation for the identity identity and self-construction of the performance subject in the group interaction^[5], and gives users unprecedented authority of self-presentation and a sense of gain of social attention. In the age of social media, people live in the environment of being watched, namely being "gaze", and "gaze" is the main motivation of self-performance. Everyone wants to show their own good side, and AI face changing based on deepfake technology is easy to meet the needs of users.

3.3 Flow Attraction, Profit Drive

Above the flow, interest first, has become the mantra in the era of we media. And the more new things have the more potential for drainage. AI face change as an emerging technology, appropriately to the flow of the domain of the tuiyere.

"I just started as curious, and then I brush on TikTok to change my boyfriend's face into a star's face, so real, real is a little scary. Later, I looked at the comment section to learn how to use AI to change your face, and then pay attention to some public accounts, but many software is actually charged for " (C)

Through online observation, the author found that there are many articles on Zhihu platform titled [a video earned more than 60,000 yuan, TikTok popular AI face change nanny tutorial], which is also the reason why some people contact and learn AI to change their face. In daily life, there are a small number of ordinary people exposed to high-quality AI face-changing technology, while technical personnel with relevant

technology can profit from it. An article by Xinxin Jingwei Media pointed out that in a second-hand trading platform, selling obscene videos of celebrities' changing faces, providing customized video face-changing services, and teaching face-changing technology has become a business. More than 40 female celebrities have changed their faces, and hundreds of erotic and violent videos are sold for only 49 yuan. These businesses take advantage of this entertainment frenzy to seek huge gray benefits, use various means to evade the monitoring and review of the platform, abandoned the social responsibility that enterprises should uphold, resulting in huge negative effects.

4 The Ethical Risk of Deepfake

4.1 Self-cognitive Risk: Digital Faces Eliminate the Boundary of Authenticity and Falsehood

Lacan's "mirror stage" theory holds that infants who are carried to the mirror go from being unable to identify the mirror image to having to "recognize" themselves with ecstasy and begin to become infatuated with themselves.^[6] In the final stage of this process, when the subject identifies the mirror image as himself, he has already imagined the light and shadow into real — to confuse the real and fiction, and thus begins to be infatuated with his own mirror image.

"I like to play AI photo on FacePlay, I can be all kinds of me, but sometimes look in the mirror feel very different from AI photo Li Da, will be a little very difficult to accept, will always think if my skin is a little more white, nose in a little good. Sometimes these negative thoughts can make me very sad anyway."

Through AI face-changing technology, people can create a more diverse, idealistic self, self-appreciation and allow others to watch. But in the long run, people are easy to get lost in the "media" self-image, and at the same time produce a sense of separation between ideal and reality. After all, there is a certain aesthetic gap between the "ideal self" created by the logic of technology and algorithm, —, namely, the "alienated self" and the "me in reality".

4.2 Risk of News Distortion: Reducing News Credibility

Deepfake utilizes algorithmic capabilities, machine learning, and the modern ability to process information, enabling users to insert real-world human facial, body, and visual information into a false environment^[7], thus producing convincing videos that appear to be "real" recordings. Due to the high influence of social media, these seemingly "real" videos can reach millions of views in an hour and have a negative impact on our society. Just like the fake pictures of Trump being arrested spread on social media, the widespread video picture is more difficult to distinguish between the truth, after all, the audience lacks the technology and means to identify. When the audience learns and finds that what they see with their own eyes, the audience will be more vigilant to some highly controversial news and will not easily believe the news information.

"I never thought that fake news would do this now. When I saw a video of Trump's arrest, it was real. People like me almost believed it, and my parents would have believed such a realistic video."(E)

The general public is difficult to identify whether video is fake information, most of the fake video has the advantage of short fast, before see has been viral, although some cheap fake video will be identified because protagonist facial expression is not natural, but the recognition and spread of time difference, then video meme may have caused the cognitive deviation and social tear. In addition, the legacy of deepfake is that it is easy to bring the second order effect, which is manifested in stimulating the popularity of conspiracy theories of information dissemination, and the dissemination of real media is also regarded as the product of synthesis. Originally visual system in cognitive dominant position, video has high information bearing potential and become a real "gold standard", but the depth forged prevents the media from watching the world, form a common understanding of the world, to journalism and other media in building the role of building the world form serious damage.

4.3 Information Security Risk: Information Leakage Causes Infringement Crisis

Although AI face change is easy to convince viewers, this does not mean that AI face change is successful every time. The training data must choose a very representative image, that is, if you want to generate a certain facial expression, then the basic data image must have a large number of pictures of the expression. So, if sufficient basic data is lacking, then generally similar results will occur.

"Because I need to visit the album, I am a little hesitant. I am afraid that the photos in my album will leak, but if you don't authorize it, you can take the risk of information leakage. I still hope the platform will live up to my expectations and not violate my privacy."

Information security risks involve not only individuals, but also countries. The US Special Operations Command is planning to use technologies such as "deepfake" to develop a new generation of "military information-support operations" tools for Internet information manipulation, propaganda and fraud, the US interception website reported Tuesday. The most common way to use deepfake technology is AI face changing, which also includes voice simulation, face synthesis, video generation and so on^[8]. The advent of this technology has made it possible to tamper with or generate highly realistic and difficult to identify audio and video content.

5 Conclusions

In the social media environment of holograms, deepfake technology subverts the truth and generation mechanism. Human beings are also faced with the infringement of rights and the materialization of the body, especially the materialization of face-changing applications and the wavering of human subjectivity. In the field of news, the deepfake technology mainly based on AI face exchange subverts the public opinion field and

becomes a public opinion tool to break the news ecology. At the same time, because the AI face change based on deepfake technology is highly confusing, low cost, extremely destructive and fuzzy, it poses a great threat to the maintenance of the social system. Of course, the AI face changing function based on deepfake technology may also have the possibility of social use. For example, AI face changing for bad artists in movies and TV dramas and AI virtual anchors created in the field of news industry, so as to greatly reduce the production cost of news programs, improve the production efficiency of news content, and even subvert the future news production mode. However, the screening and review mechanism for deep fake videos is still relatively backward, and we need to develop a technology that can check these types of videos and distinguish between real and fake videos. Government agencies also need to develop policies to regulate the technology to monitor and control the use of this AI technology.

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