УДК 316.772.5:004.89
DOI: 10.31500/1992-5514.20(2).2024.318261

ISSN 1992-5514 (Print) | 2618-0987 (Online) | cc. (pp.) 118–125

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Deepfake in the Communicative Space of Internet Culture: Features of Application

Діпфейк у комунікативному просторі інтернет-культури: особливості застосування

Abstract. The aim of this work is to conduct a cultural research study on the specifics of deepfake technology use in the context of the transformations of 21st-century Internet culture. This paper analyses the features of deepfake application in culture and new media, which is increasingly utilised as one of the tools of artificial intelligence in cultural practices and creative industries (films, music, visual arts) and socio-communicative networks, modelling new forms of creative self-expression while simultaneously producing ethical, legal, and socio-cultural challenges. The article addresses the issues of authenticity of cultural products and the responsibility for manipulative use of deepfakes, which can lead to disinformation and cyberbullying. This paper seeks to focus on gender aspects, considering the use of deepfake technologies for creating fake videos that exploit the images of women. The work analyses both the tools for creating deepfakes and their recognition, justifying the necessity of transparent use of artificial intelligence technologies in the digital cultural space alongside the appropriate legislative regulation. Thus, the study of current trends in Internet culture and the specifics of deepfake use as an artificial intelligence tool in cultural practices, creative industries, and new media highlights both creative opportunities and potential threats, allowing for a deeper understanding of the various aspects of the transformation of communicative models in contemporary culture of the Internet and technologies.

Keywords: communication space of culture, deepfake, deepfake technology, Internet culture, artificial intelligence, AI, AI tools, digital copy, digital technology.

Problem statement. Internet culture is a complex phenomenon that reflects the way in which digital technologies and the Internet transform human communication and formation of social structures. At the current stage, we observe a gradual transformation of the communicative space of Internet culture, which is directly related to the intensive development of Internet networks, the accelerated evolution of digital technologies, and, consequently, of the cultural and creative forms of self-expression in the digital environment, as well as the emergence of new leisure practices.

An essential place in this process is occupied by artificial intelligence (hereinafter referred to as AI) tools, which are actively integrated into various spheres of modern culture and social existence. One such tool is a deepfake technology, which enables the creation of realistic but fake images or videos using machine learning algorithms.

The relevance of studying the features of deepfake application in cultural practices, creative industries, and social media is determined by their rapid proliferation and potential impact on the socio-cultural, ethical, and legal aspects of contemporary society. Therefore, understanding the issues related to the use of deepfakes is crucial in terms of identifying the potential opportunities and threats they pose in the context of socio-cultural transformations and the global influence of Internet communications in the 21st century.

Literature review reveals that scientific coverage of the phenomenon of deepfake is currently represented by the works of Henry Ajder, Giorgio Patrini, Francesco Cavalli, Laurence Cullen (2019). It is imperative to point out that the study of deepfake technologies is directly related to the identification of trends and challenges of the artificial intelligence era. In their study of deepfake and AI, the futurological projections of ideas for the future development of society are being laid down. It refers to the theory of technological singularity—the idea of the inevitability of creating new forms of AI that will surpass humans in their ability to innovate. In this regard, certain experts indicate that in the coming decades, there will be a transition to a new society and economy, in which machine intelligence will

become dominant. This vision is shared by such scholars as: Damien Broderick (Blackford & Broderick, 2014), Ray Kurzweil (2005), Vernor Vinge (1993). It is also confirmed by the concept of *The SingularityNET Whitepaper 2.0* (2019).

New technologies were widely studied in previous cultural and historical eras. In particular, the inevitability of the "privileges" of technological progress, which humanity will certainly choose, was sceptically discussed by Sigmund Freud in 1930, in terms of the indicator of such a category as "happiness" (Freud, 1930). Instead, today, when the theory of the inevitable technological singularity is supported by the members of technological and business circles (and, to some extent, scientific circles), the issues of ethics and values related to the use of AI are reaching a new level of public debate. This issue is developed in the scientific works of V. Sivers (2020; 2024) and Aimee Nishimura (2023).

In the course of reviewing the historiography of the subject, it was found that the understanding of the role of AI and deepfakes in society also has affected the gender studies. For example, Danielle K. Citron presented the analysis of the threats of antisocial behaviour when using digital technologies in the Internet space (Citron, 2009). The scholar concluded that the physical absence of a person in cyberbullying reduces the assessment of the threat of antisocial behaviour, and technology as such "disaggregates" responsibility. Citron also studied gender issues (in particular, misogyny) in cyberbullying of female bloggers and female celebrities. At the same time, another academic, Jennifer Robertson (2010), coined the term "robo-sexism," studying the correlations between the processes of robot production and the transfer of socio-cultural gender roles in Japan.

Therefore, it is unsurprising that today there are many legal works addressing the specifics of acquiring civil rights for the application of AI technologies. For example, the paper by H. Androshchuk (2021) may be mentioned, who explored AI technology in the context of intellectual property. There are also journalistic materials about the impact of AI on the artistic sphere—cinema, literature, music (by P. Horlach (2023) and O. Tartachnyi (2024)), where the issue of drawing a line between the use of copyright and the civil right to ownership of a personality is becoming particularly acute (M. Yesypovych (2023). Instead, the research discourse of analysing the specifics of the use of AI in modern cultural practices and creative industries is represented by the works of such Ukrainian and foreign scholars as: A. Horbatiuk (2023), Zh. Denysiuk (2022), O. Oliinyk (2023), T. Poda (2024), A. Chibalashvili (2021), Neil Postman (1992), Leah Govia (2018), C. Penley & A. Ross (1991), and others.

The analysis of research and publications on the subject of the article can be summarized by the following idea: today, in order to preserve the harmony of human creative activity and AI, scientists are trying to determine, first of all, where exactly the boundary of safe and legal use of AI tools in Internet culture lies. At the same time, the issue of using deepfake technologies in cultural practices and creative industries requires an in-depth reflection, including the one from the perspective of cultural studies.

The aim of the article is to study the specifics of the use of deepfake technology in the context of transformations of the Internet culture of the 21st century.

Results and Discussion. Artificial intelligence is actively integrating into the cultural space and the creative industries, unveiling hitherto unexplored opportunities for modelling creative models of cultural expression. They allow artists to invent and present new forms of expression, as well as to rethink reality and experiment with it in the manner previously unknown in cultural practices.

So, on the one hand, as T. Poda notes, "balancing the unique capabilities of AI and human creativity can pave the way for innovative and meaningful acts of creativity" (Poda, 2024, p. 43). This is especially true concerning the use of AI tools in the creation of artistic texts in the fields of cinema, music, visual arts, etc. On the other hand, artists themselves often become victims of technology due to the devaluation of human creativity and the unregulated use of data for machine learning, since, as stated by A. Chibalashvili, "artificial intelligence cannot have emotions and, accordingly, cannot express them through creativity like a human being" (Chibalashvili, 2021, p. 47).

At the same time, the technology of creating deepfakes is of particular concern. Deepfakes (deep learning + fake) are digital fakes generated by AI, mostly fake photos and videos, characterised by a high degree of realism, so they are difficult to distinguish from the real ones. Deepfake technology is based on the fact that special algorithms of computer programs use information from various sources (photos, videos) and constantly advance their functionality, improving the ability to adapt to termed "prompts"—requests for performing a particular task. For example, with the help of such programs as: DeepFaceLab (95 % of the market), Reface, Zao, FaceApp, GauGAN, they analyse the initial data—the minutest physiological features of a person (for example, his or her face in different angles and lighting). By synchronising facial expressions, movements, gestures, etc., the program combines all this into one material, creating a so-called "mask" that is superimposed on a photo or video of another person. In this manner, various real data are combined to create an unreal—a fake.

In order to explore how AI tools, in particular, deepfakes have changed the sphere of creativity, creative industries, and social communications, one should consider social media. It is common knowledge that deepfakes have become an important element of the modern meme culture, which is actively shared as entertainment content on social networks such as TikTok, YouTube, and Instagram. Viral deepfake videos of popular movies

and serials, as well as video clips imitating speeches by celebrities or famous politicians, have become a widespread and accessible way of producing parodies and satirical sketches for any user. For instance, the Viggle neural network has introduced a new AI tool that allows users to create a deepfake by "making" anyone play football, dance, or walk a catwalk.

These examples demonstrate, first, the ability of deepfakes to create new forms of online content. Second, they illustrate how technology can change the perception of reality and influence the mass consciousness. Third, they raise the question of responsibility and ethics of using AI and deepfake technologies in the communicative space of Internet culture.

In addition to socio-communication networks, AI and its tools demonstrate the potential for growing influence on the art world. At present, deepfake technology can be used legally (i.e., without posing a threat) in music, literature, painting, photography, design and architecture, fashion, and film industries.

Several examples of application of AI technologies in cinematography are the following. It is known that screenwriters use AI tools to "write" scripts (sometimes spending only a few minutes), while editors and designers create compelling movie trailers. For example, one of the short films completely modelled by AI was released in 2023 at the London Science Fiction Festival. The film is titled *Benjamin* and its plot, based on a science fiction scenario, obviously resonates with the modern technologies that were used in its creation.

In addition, AI technologies are actively implemented by marketers in the film industry as well. For instance, Warner Bros. uses Cinelytic program to predict the box office success of the company's films. Another film producing giant, 20th Century Fox, analyses the "portrait" of the target audience and its relevance to the genre of films applying the Merlin system, which employ AI and machine learning technologies.

There are also a vast number of examples of the use of AI and deepfakes in music. One of the most striking is the ABBA world virtual tour in September 2021. The artists presented their digital avatars on stage instead of performing in person. Thus, the stars (who are now at an advanced age) were able to turn into younger copies of themselves, and this innovative solution allowed them to combine the past and modernity, while maintaining the illusion of a live performance. The fashion industry also should be briefly mentioned, as there the deepfake digital models advertise clothes on social media. The main advantage is that these are employees who work around the clock, and they are not prone to illness or aging. Architects use sketches created by AI. Journalists preserve the anonymity of the subjects in their reports using these technologies.

Meanwhile, deepfake materials may play an educational role in modern museum practices. Some museums, such as the Salvador Dali Museum in Florida, apply this technology when the artist himself (i.e., a digital avatar of the artist) "presents" his works to visitors, with whom they can communicate and even take pictures. In a similar manner, deepfake technologies are used in business training. It refers to digital avatars that represent a video course of lectures. They may be altered according to the request of users from different countries (age, race, gender, speaker's language, etc.).

Ukrainian positive example of the use of technology is the project "The Revived". A unique memorial was created from digital copies that immortalises people's memories using deepfake technology. "The Revived" restored the images of Ukrainian athletes who died because of Russia's war against Ukraine. It is indisputable that these digital avatars of famous athletes—boxers, fencers, weightlifters, swimmers—were created with the permission of their families based on their photos and videos. As a result, each athlete was presented with a personal story in the Ukrainian Volya Space House at the Paris Olympics. Such examples of the deepfake application for commemoration reinforce the positive attitude towards AI technology as a tool that is subordinated to the cultural, educational, and patriotic goals of the project.

However, like every innovation, the technology of the deepfake has its proponents and, at the same time, critics. The main argument of the latter is that, due to the rapid technological progress, humanity is unable to control the application of AI. The technology is already generating trillion-dollar profits, simultaneously, hundreds of lawsuits are emerging regarding the improper use and dissemination of deepfakes. For instance, artists work globally across various cultural fields (such as music, film, literature, and painting) are creating petitions today. They demand that such giants as Google, OpenAI, remove their works and personal data for machine learning, so they would not be used to generate new content and products. However, these issues remain unresolved, as AI continues to use content downloaded from the Internet to generate new content at the request of a person (often uncontrollably).

It should be noted that today artists of certain specialisations, such as painters, are considered to be the most protected from fakes, although not completely, because their works are authenticated by experts in galleries. However, this is not the case with the music industry.

There exists a precedent for using artist data and producing new content that already happened in Ukraine. The PAPA music label that previously developed the image and invested in the promotion of the famous artist Wellboy (Anton Velboy), employed deepfake technology after the cooperation with the singer was terminated. In the music label's TikTok account, the artist appears to be dancing to a track, however, this is a fabrication. The producers justified their actions by citing the signed contract, which grants them rights to use photo, video and music materials, based

on which they created the deepfake. However, IP&Media lawyer Maria Yesypovych commented on the incident: "The transfer of property rights to works does not equate to the transfer of rights to the performer's face, body and identity" (Yesypovych, 2023). Although a deepfake uses video, the specifics of its AI creation involves using other audio and video recordings. Therefore, the final product is a copyrighted work, in which all components must be protected by copyright.

As for international examples, Universal Music, Sony, and Warner Music have recently sued music start-ups Suno and Udio for copyright infringement. Both start-ups use generative AI to create new music compositions based on user requests. At the same time, these start-ups train neural networks without paying labels or performers (which, accordingly, is the subject of lawsuits for copyright infringement). Interestingly, the main arguments of the start-ups against the charges were:

1) Compliance with the fair use doctrine. In their view, the use of information is transformative, as it "includes the analysis and study of musical styles and genres to create new original compositions. In other words, the Suno AI model is not a collection of stored fragments of famous songs, but rather a dataset on the properties of musical genres" (Tartachnyi, 2024),

2) The absence of a monopoly by companies and performers over specific genres and styles (hence, the service emphasises that it merely reproduces them),

3) The music created by the service is the result of an innovative process that does not involve the reproduction or distribution of works protected by the plaintiffs" copyrights,

4) Fair competition. According to Suno, "AI-generated music serves a different market segment and does not directly compete with the plaintiffs' offerings. However, in their claim, they suggested that the labels' demands are motivated by their fear of competition and a loss of control over the music market" (Tartachnyi, 2024).

In continuation of this discussion, the question arises: what are other examples of the threats posed by AI technologies in the fields of culture and the arts?

One of the most interesting experiences of using deepfakes in filmmaking is the creation of convincing transformations through the swapping of actors' faces in videos or altering their gender, age, and even "reviving" them in a literal sense. Undoubtedly, the use of such creative approaches by film giants (including for cost reduction in film production) opens new opportunities for the film industry; however, it also raises a number of social issues. Among these are the problem of the authenticity of AI-generated content, the presence or absence of copyright on film works, and ethical concerns regarding the impact of technology on the acting profession. Consequently, the release of several films entirely generated by AI caused a negative reaction from actors, as the emergence of such products poses significant competition to them.

In view of this, in 2023, the longest protest in the film industry took place, declaring artists' demands for the introduction of a limit on the use of AI in film production. This protest emphasised the assertion that "cultural technologies cannot be considered neutral; they are a product of social processes and power relations. Like all technologies, they are created in the interests of industrial and corporate profits, rather than for greater public engagement or creative independence" as Constance Penley and Andrew Ross noted back in 1991 (Penley & Ross, 1991, p. 12).

In this context, it is paramount to mention that, according to a study published in the *Crime Science* journal in 2020, the risks of using a deepfake were considered to pose the greatest threat. One such potential threat is adult content, which generates the most traffic online. The first deepfake of this nature appeared in 2017. Back then, a user posted pornographic films featuring Hollywood stars on Reddit. According to a 2019 report by the Dutch cybersecurity company Deeptrace, 96 % of deepfake videos are "adult" content and they are generated with 100 % female participation. Thus, D. Citron, a professor of law at Boston University, warns: "Deepfake technology is being weaponized against women by inserting their faces into porn. It is terrifying, embarrassing, demeaning, and silencing. Deepfake sex videos say to individuals that their bodies are not their own and can make it difficult to stay online, get or keep a job, and feel safe" (Citron, 2009, p. 6). Therefore, the ethical issues outlined above acquire a gender dimension, specifically in the process of protecting women's rights.

Further exploring the issue of negative consequences of deepfakes use, it is noteworthy to highlight the sphere of politics. Experts believe that deepfakes are employed to interfere in elections, increase political tension, manipulate public opinion, among other issues. In this context, it is significant to mention the neologism that has emerged precisely with the infiltration of deepfakes into people's lives—the "liar's dividend." This concept describes the situation when, in the world of deepfakes, a person who lies can use these technologies to discredit truthful evidence, labelling it a forgery.

For example, in the United States, one of the most well-known cases of deepfake usage is considered to be Barack Obama's speech in 2018. It was a speech by a digital avatar of the former US president that addressed global threats that could be caused by fake news and disinformation on the Internet. The latest example from the field of politics was an attempt to manipulate public opinion and discredit the opponent, when Donald Trump accused Kamala Harris of using AI to falsify the number of people present during the broadcast of her rally in Michigan. It is also peculiar that during Russia's full-scale invasion of Ukraine, one of the aggressor country's tools is the use of AI as a "weapon" for propaganda, namely the spread of fake news. One of the expected diplomatic fakes was

to be the speech of the President of Ukraine on the surrender of Ukrainian troops.

Thus, as these examples show, the law still does not fully regulate the use of AI tools that can pose a real threat. Therefore, given these negative instances of the use of deepfakes in cultural practices, creative industries, social communications, and the political sphere, the question of detecting deepfakes logically arises.

Special tools for assessing the authenticity of information already exist. For example, such publicly accessible tools as: Google Fact Check Explorer, FactCheck.org, Snopes, FollowerAudit, Audicity multi-track audio editor (Sage, 2023) or professional programs: Sentinel, Density, Sensity AI, Fake news debunker by InVID & WeVerify FotoForensic, etc. At the same time, experts believe that today it is still possible to recognize an AI "footprint" on your own. When reviewing materials in terms of assessing the presence or absence of a deepfake, one should rely on their own feelings. Sometimes we get the impression that something is "wrong". This occurs, among other things, when a person's emotions displayed on the screen do not align with what is shown by the facial expression or tone of voice. Apparent to the human eye unnatural movements, colours and shadows, blurred edges, glare, irregular growth line or "blurred" hair, disproportionate body parts also indicate that the video may have been faked (Musiienko, 2022). Several additional distinctions between real content and a deepfake are:

- the person in the video moves their lips with a delay relative to the sound, or formulates words incorrectly,
- phenomena that seem unnatural: the position of the whole body or head in relation to the body, incorrect reflection of light glare on surrounding objects or accessories, etc,
- discrepancy between the quality of audio and video (usually the audio track is of poorer quality),
- unevenness of the image, which most often appears at the junction of the body and the head (because when the celebrity's head is "glued" to another body, blurring may appear in the neck area),
- frame skips (intermittency) and frame errors (different light angle, type or direction),
- change in the hashtag during the video may also mean that we are watching a deepfake video.

However, unlike visual assessment of materials, it is almost impossible to verify the authenticity of AI-generated audio content by relying on your own hearing, as the technique of voice cloning using machine learning algorithms has advanced significantly. Back in 2016, Google and Baidu released tools for converting text to human speech called Text to Speech (TTS). Later, these tools were supplemented and improved by learning systems, such as neural networks, which are capable of deciphering multi-layered sound structures and transforming them into complex representations (Sage, 2023).

Therefore, in such cases, when detecting a deepfake, one should not rely on intuition but on a scientific approach and tools that can professionally assist in deciphering a deepfake known as OSINT tools (open-source intelligence). Generally, these tools are aimed at collecting and analysing publicly available information and further evaluating its relevance, credibility, and reliability through specific techniques and methodologies. The latter can be categorised based on criteria into analytical, fact-checking, behavioural, and spectral analysis methods. Among them, search and comparison with other sources (such as, for example, official news) and fact-checking to identify fakes (checking credibility and reliability) are important points for verifying authenticity. The behaviourist method involves social media analysis (initiated in 2017), which is based on examining common behavioural characteristics typical of fake profiles. In contrast, the spectral analysis method relies on studying the amplitude properties and spectral characteristics of signal frequencies, identifying deviations in these indicators in the cloned voice compared to the original.

Therefore, considering the research on current trends in 21st-century Internet culture in the context of the development, use, and recognition of deepfake technology, the use of AI tools should be transparent and clearly labelled. Today, it is abundantly true that society is struggling to keep pace with the advancement of deepfake technologies and does not fully have the capacity to assess the dynamics and forms of fake content. Therefore, it proves to be necessary to halt the unregulated use of AI tools that create chaos in all spheres of life and to provide users with quality and free deepfake identification tools. Against the backdrop of rapidly changing and evolving transformations of the socio-cultural and communicative Internet environment of the 21st century, humanity needs a solid foundation for assessing reality. As Neil Postman notes in his book *Technopoly*: "…new technology adds nothing and takes nothing away. New technology changes everything" (Postman, 1992, 31).

Conclusions. The cultural study of the specificities of deepfake technology use in the context of the transformations of the 21st-century Internet culture allows for an emphasis on certain conclusions and perspectives regarding the comprehension of this complex issue within the discursive field of the humanities.

In the course of studying the features of deepfake technology application in the practices of cultural and creative industries and social media, it was determined that deepfakes are currently viewed as a new AI tool that is actively employed within the socio-communicative space of Internet culture. The deepfake technology alters previous notions of creativity, identity, authenticity, and values, while also influencing the norms and patterns of behaviour, as well as the forms of communicative interactions unfolding in the online environment. Deepfakes are not only becoming a means of artistic expression in leisure and cultural-artistic

practices, but are also regarded as a tool for manipulation in the New Media (particularly, in the political sphere), raising issues of responsibility and regulation regarding their use in the dynamic and open environment of Internet culture.

The analysis of positive and negative examples of deepfakes application stimulates discussions about the role of AI in shaping the machine's perspective of the modern world and delineating the boundary between human creativity and the "creativity" of machines.

The aforementioned, in the context of anthropocentric perspectives on the evolution of cultural processes and traditional notions of artistic creativity, leads, on the one hand, to a biased attitude towards AI tools, raising concerns about the loss of human creativity and casting doubts on the predictability/unpredictability of AI's potential in the future. On the other hand, the emergence of new creative tools in film, music, and visual arts, along with the ability to experiment with reality and create unique cultural products (including those of educational significance), delineates formats of interaction between humans and machines that are subordinated exclusively to human goals and, therefore, do not pose threats to society.

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Охримович В.

Діпфейк у комунікативному просторі інтернет-культури: особливості застосування

Анотація. Мета роботи полягає у культурологічному дослідженні специфіки використання технології діпфейку у контексті трансформацій Інтернет-культури XXI століття. Проаналізовано особливості застосування діпфейку в культурі та нових медіа, що дедалі частіше використовують як один з інструментів штучного інтелекту в культурних практиках і креативних індустріях (кіно, музика, зображальне мистецтво) та соціально-комунікативних мережах, моделюючи нові форми творчого самовираження та водночас створюючи етичні, правові, соціокультурні виклики. Розглянуто питання автентичності культурного продукту та відповідальності за маніпулятивне використання діпфейків, що може призводити до дезінформації та кібербулінгу. Особливу увагу приділено гендерним аспектам, з огляду на застосування діпфейк-технологій для створення фальшивих відео, що експлуатують образи жінок. Проаналізовано як інструменти творення діпфейків, так і їхнього розпізнавання, з обґрунтуванням необхідності прозорого використання технологій штучного інтелекту в дигітальному просторі культури з відповідним законодавчим регулюванням. Таким чином, дослідження актуальних тенденцій Інтернет-культури сьогодення та специфіки використання діпфейку як інструменту штучного інтелекту в культурних практиках, креативних індустріях та нових медіа висвітлює як творчі можливості, так і потенційні загрози, що дозволяє глибше зрозуміти різні аспекти впливу штучного інтелекту на трансформацію комунікативних моделей в сучасній культурі доби Інтернет-технологій.

Ключові слова: комунікативний простір культури, Інтернет-культура, штучний інтелект, ШІ, інструменти ШІ, технологія діпфейк, цифрова копія.

Стаття надійшла до редакції 19.08.2024