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## **TRUTH & TRUST IN THE AGE OF DEEPAKES: RECOGNIZE & OVERCOME**

**Abstract.** *Modernity embraces widespread digitalization and explores «deep fake» technology's impact on media, involving AI for photo and video manipulation. The report discusses «deepfake» impact on the media landscape. Public education, media literacy, and fact-checking are of crucial importance, especially in times of a military invasion in Ukraine.*

**Key words:** *Deepfake Technology; Artificial Intelligence (AI); Generative images; Misinformation; Media literacy.*

**Чемерис Г. Правда та довіра в еру Deepfake: розпізнати та подолати** *Сучасність характеризується широкомасштабною цифровізацією та вивчає вплив технології «глибокого фейку» на медіапростір, включаючи використання штучного інтелекту для обробки фотографій та відео. Обговорюється вплив «Deepfake» на медіапростір. Громадська освіта, медіаграмотність та факт-чекінг мають вирішальне значення для, особливо в часи воєнного вторгнення в Україну.*

**Ключові слова:** *технологія Deepfake; штучний інтелект (AI); генеративні зображення; дезінформація; медіаграмотність.*

**Relevance.** *Modernity is marked by the widespread digitalization of nearly all aspects of public life. This report particularly delves into the impact and utilization of generative images, commonly known as "deep fakes", in the context of the rapid advancements in artificial intelligence technologies.*

*A significant number of scholars have studied the issue of reviewing the technology of artificial intellect [1; 4 et al.], deepfake technology, exploring its origins, development [5; 8; 9; 10; 11 et al.], and impact on various aspects of society, particularly its applications in education [2; 3; 6; 7 et al.]. As deepfake technology continues to evolve, it raises important questions about its*

integration into educational settings. This review discusses the challenges and opportunities associated with incorporating deepfake technology in education, with a focus on the need for critical thinking skills and digital literacy in the face of its potential misuse.

**The aim of the research** is the analysis of current state and opportunities of «deep fakes» technology and there arises the need to develop a critical thinking methodology to reduce its impact.

**Outline of the main material.** Deepfake Technology or “deepfakes” are manipulated photo or videos, which rely on artificial intelligence (AI) - enabled technologies to splice the likeness of someone onto the face of another [9].

The continuous evolution of information and computer technologies has brought about significant changes in the media landscape. Modern computer graphics tools are increasingly being used for creating photorealistic images and modeling objects for virtual and augmented reality.

Furthermore, neural networks for generating realistic images, from common photo editing practices to content generated by artificial intelligence, such as NeuroArt, CheepFake, DeepFake, DeepNude, CryptoArt, anamorphic Virtual Performances, and Face Swapping, etc [5].

Technological advancements have simplified the creation of visual content through «Deepfake» technology, allowing for hyper-realistic visual manipulation, including face swaps that leave no discernible traces of alteration. Deepfake technology has the potential to create humorous, pornographic, or politically manipulated videos without the subject’s consent. It is particularly dangerous as it can be used for political sabotage, fake video evidence in legal proceedings, terrorist propaganda, blackmail, market manipulation, and the dissemination of fake news.

In the best-case scenario, it can be an enjoyable, lighthearted joke among you and your friends. In the worst-case scenario, someone may use your likeness to create content in which you are depicted doing or saying things you haven’t actually done. The potential for generating fake news, infringing on someone’s privacy, or obtaining sensitive information is now at a higher risk than ever before.

The increasing popularity of video content highlights the necessity to develop techniques that will form an critical thinking, enabling individuals to determine the authenticity of media and news. To combat the challenges

posed by misinformation, public awareness, media literacy, and fact-checking efforts are of utmost importance. Due to the psychological characteristics of an individual, trust is instilled after seeing with one's own eyes, providing a foundation for the manipulation of consciousness through the dissemination of misinformation via synthetically reproduced media content using Deepfake technology and other methods [10].

Deepfakes have been a longstanding issue, but the tools required for their creation are increasingly accessible and sophisticated. In the end, deepfakes pose a significant danger as they erode our ability to have confidence in our visual and auditory perceptions [11]. A brief analysis of the search terms related to deepfakes highlights a concerning emphasis on the available creation tools. Google Trends indicates a consistent worldwide increase in searches for «deepfake», with a notable surge since the start of 2022 (Figure 1).

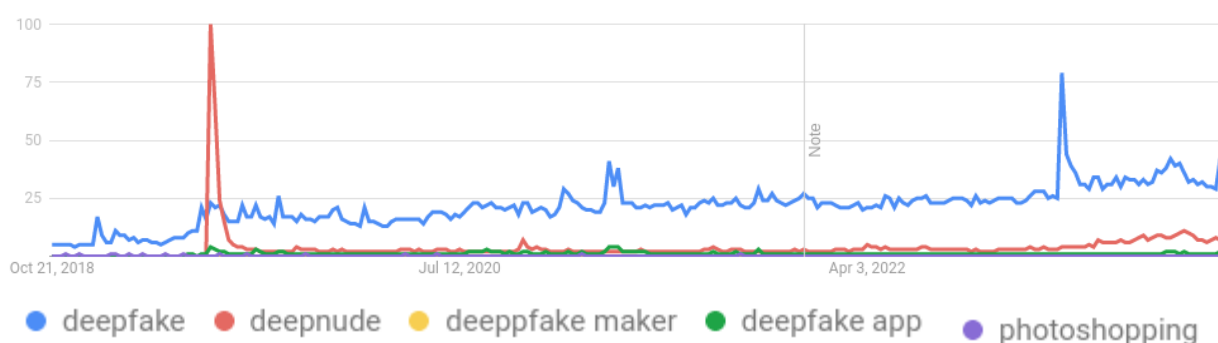


Figure 1. Google Trends dynamics

Number of papers in the area of Deepfake research by a year-wise publication count, and the number of publications by year belonging to studied categories, obtained from Google Scholar [9] (Figure 2).

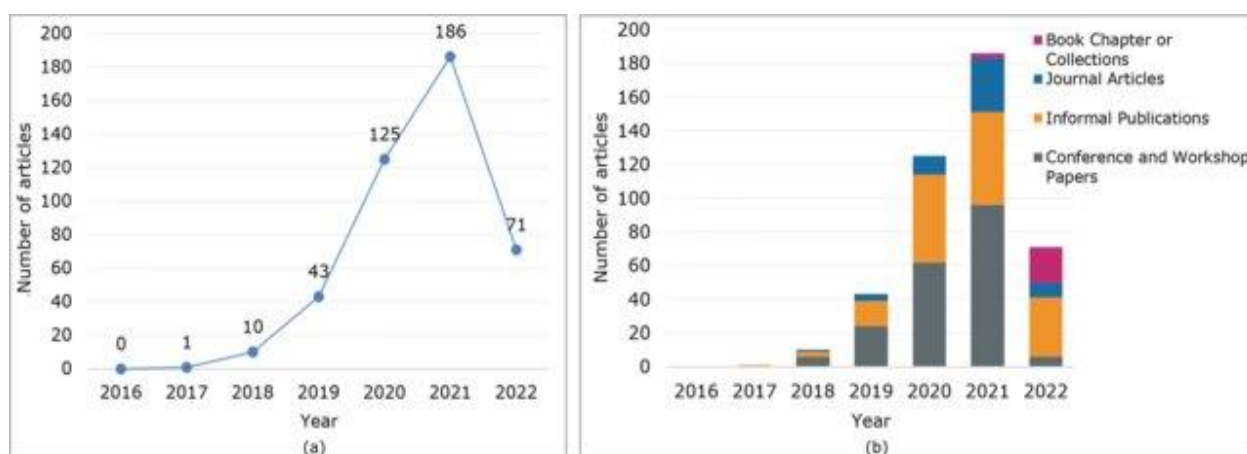


Figure 2. Google Scholar dynamics

Even high-quality deepfakes used in the film industry and advertising still lack naturalness or realism. The slightest unnaturalness in the appearance and behaviour of the object causes anxiety and dislike in viewers – this is the so-called uncanny valley effect. Therefore, when analysing a suspicious video, you should first of all pay attention to the main object of overlay – the face.

**Conclusions.** The research highlights the widespread digitalization of modern life and the growing impact of generative images, known as «deep fakes», in the context of advancing AI technologies. The research underscores the urgent need for developing critical thinking methodologies to mitigate the influence of «deep fake» technology. «Deepfake» technology relies on AI-enabled techniques to manipulate photos and videos, creating realistic content with the potential for misuse, posing threats ranging from political sabotage to misinformation dissemination. In the face of the increasing popularity of video content, the importance of media literacy, public awareness, and fact-checking efforts becomes evident to combat the challenges posed by synthetic media content. These findings reveal that «deepfakes» present a pressing concern, and addressing this issue requires collaborative efforts and education to enhance digital literacy and discernment.

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