

Chapter 10

Combating Deepfakes: Ethical Frameworks and Technological Solutions for Preserving Integrity in Digital Media

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ABSTRACT

As we delve into deepfake technology's threat to digital media integrity, it becomes clear that a holistic approach that intertwines ethical guidelines with advanced technological solutions is necessary for an effective defense approach. Credence must be given to the crucial balance between technological innovations for deepfake detection and the establishment of rigorous ethical standards, further analysis underscores the importance of safeguarding privacy, truthfulness, and public trust, while advocating for continuous innovation, policy evolution, and collective efforts to thwart the potential independent and personal harms posed by deepfakes.

INTRODUCTION

Overview of Deepfake Technology and Its Significance

Definition and Evolution

Deep fake is the term used to describe an image or recording that has been altered and manipulated to represent someone as saying or doing something they were actually not said or done. Usually, the edit is so convincing as algorithm is being

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used to replace the person in the original video with another person in a way that makes the later video look real and original. The term deepfake is coined out of two words – deep learning and fake. According to Maras and Alexandrou (2019), Deepfakes are the product of artificial intelligence (AI) applications that merge, combine, replace, and superimpose images and video clips to create fake videos that appear authentic.

Accordingly, Tolosana et al (2020) defined the term deepfake to mean a deep learning-based technique able to create fake videos by swapping the face of a person by the face of another person. In a world where majority of the news and information gotten are from the media, the threat of fake news being perpetrated through deepfake technologies is undeniable. At present, one out of five internet users get their news from YouTube a medium only second to Facebook (Anderson, 2018), and the probability of having a negative impact on the society is high as fake news spreads quickly on social media (Figueira & Oliveira, 2017).

The recent advancement in technology has led to the creation of “deepfakes,” which are hyper-realistic videos generated using AI applications to merge, replace, and superimpose images and video clips, creating fake videos that appear authentic (Maras & Alexandrou, 2018). This technology allows almost anyone with a computer to fabricate videos that are practically indistinguishable from genuine media (Chawla, 2019), enabling various malicious activities such as revenge porn, bullying, fake evidence in courts, political sabotage, terrorist propaganda, blackmail, market manipulation, and fake news (Hasan & Salah, 2019).

Deepfakes pose significant ethical and societal challenges due to their potential misuse and manipulation of information without the consent of the individuals involved (Maras & Alexandrou, 2018). Besides pornography, deepfakes have been widely circulated in various contexts. For instance, there's an image depicting Pope Francis wearing a puffer jacket, another showing former U.S. president Donald Trump engaged in a scuffle with police, and a video featuring Facebook CEO Mark Zuckerberg delivering a speech about his company's purported nefarious power. Additionally, there's a video portraying Queen Elizabeth dancing and delivering a speech about the influence of technology. It's crucial to note that none of these events actually occurred in reality (Payne, 2024). It is worthy to note that deepfakes also have positive uses in many industries. including movies, education, gaming, entertainment, social media, healthcare, material science, and business sectors.

In the film industry, deepfake technology can be utilized to create digital voices for actors who have lost their ability to speak due to illness or for updating film footage without the need for reshoots. Additionally, filmmakers can recreate classic scenes, resurrect long-deceased actors for new roles, employ special effects and advanced face editing in post-production, and enhance amateur videos to professional quality. Automatic and realistic voice dubbing for movies in multiple languages can also

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