# Athia Fidian

## 2nd Jan 25 CheckTur Essay - Deepfake Technology (2).docx

Artikel 4
DOSEN
Universitas Muhammadiyah Magelang

### Document Details

**Submission ID**
trn:oid:::1:3123628095

**Submission Date**
Jan 2, 2025, 11:53 AM GMT+7

**Download Date**
Jan 2, 2025, 11:55 AM GMT+7

**File Name**
2nd_Jan_25_CheckTur_Essay_-_Deepfake_Technology_2_.docx

**File Size**
20.4 KB

7 Pages

1,945 Words

10,972 Characters

# 2% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

## Filtered from the Report

- Bibliography
- Quoted Text

## Match Groups

**1** Not Cited or Quoted 1%
Matches with neither in-text citation nor quotation marks

**2** Missing Quotations 2%
Matches that are still very similar to source material

**0** Missing Citation 0%
Matches that have quotation marks, but no in-text citation

**0** Cited and Quoted 0%
Matches with in-text citation present, but no quotation marks

## Top Sources

0% Internet sources
0% Publications
2% Submitted works (Student Papers)

## Match Groups

- **1** Not Cited or Quoted 1%
  Matches with neither in-text citation nor quotation marks
- **2** Missing Quotations 2%
  Matches that are still very similar to source material
- **0** Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- **0** Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

## Top Sources

0% Internet sources
0% Publications
2% Submitted works (Student Papers)

## Top Sources

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1 Student papers
**Academy of the Canyons** 1%

2 Student papers
**University of Surrey** 1%

3 Student papers
**hmh-writable** 1%

# DEEPFAKE TECHNOLOGY AND ITS ISSUES

Anggita Leo Ervandy[1], Dimas Litanjuana[2], Fitro Praaidinza Muhammad[3]
[1]Mahasiswa S1 Teknik Informatika
[2]Mahasiswa S1 Teknik Informatika
[3]Mahasiswa S1 Teknik Informatika
Universitas Muhammadiyah Magelang
*email: teknikinformatika@gmail.com

## INTRODUCTION

Deepfake technology is a combination of deep learning and fake contents. Deepfakes are made by swapping the face from a person to a targeted person within the video or image This technology surfaced in 2017, after a Reddit account with the same name developed a machine learning technique to insert the face of celebrities into adult contents. While face swapping technique is known in the movie industry, it requires expertise and a large amount of time. However, with recent technological advancement and the emergence of Deepfakes, face swapping has been made easy to create (Mahmud & Sharmin, 2021; Westerlund, 2019). According to a literature review in 2022, softwares such as FaceApp and FakeApp allow the users to swap the face, hair, gender, and other physical attributes of people within images and videos (Rana et al., 2022). The emergence of these fake photos and videos has caused many anxieties.

The Deep Fake technology has caused many issues. These issues range from its consequences in politics to usage for pornographic purposes and fraudulent activities. According to the research done in 2019, 96% of Deepfake videos on the internet are pornographic contents made using the face of celebrities and even friends or classmates. Not only that, Deepfake technology can also be used to wreak havoc in political fields. Fabricated videos about election candidates making discriminatory remarks or fake footage of a public official misdirecting voters are possible to create using Deepfake technology (de Ruiter,

2021). This technology is also used by criminals to commit fraudulent activities, such as defamation and extortion (Kaan Tuysuz & Kılıç, 2023). These issues, combined with the fact that this technology can now be used by everyone, makes communication researchers concerned about its possible consequences (Temir, 2020).

This essay discusses the issues created by Deepfake technology, as well as the threats it consequences and effects on people. Key points that are discussed within this essay are the issues regarding Deepfake technology, including various misuses of Deepfake technology and the consequences of said misuse. Through review of various literatures, this essay analyzes how Deepfakes have been used for malicious purposes, as well as the issues of this advancing technology.

## RESULT AND DISCUSSION

There are three issues regarding Deepfake technology which affect people; pornography, fake political news, and fraudulent activities (Anh, 2021).

### 1. Deepfake Pornography

Deepfake pornography has become a common occurrence. Research shows that 96% of Deepfakes are pornographic contents with over 134 millions views on the top four Deepfake pornographic websites. This non-consensual use of Deepfake often targets women and invades their privacy **(**Al-Khazraji et al., 2023; Jaiman, 2020; Khimi et al., 2024). Within one year between 2022 and 2023, there was an increase of AI-generated pornographic images by 464%. By 2023, 99% of Deep Fake pornography involved female subjects. A growing phenomenon within Deepfake pornography is one of Deepnude, which uses Artificial Intelligence to “nudify” the image of a person. This application is popular due to its ease of use and results. These tools are often used for revenge pornography and sextortion. Revenge pornography is made by diffusing images or videos of someone without their consent, while sextortion is the usage of intimate materials to blackmail, defraud or threaten those portrayed in it. Both of these fall into Non-consensual Intimate Image (NCII) (Di Silvestro & Iurissevich, 2024).

Deepfake pornography often causes severe harm towards its subject, especially women. The 2023 report of Revenge Porn Helpline2 shows a 106% increase in reports between 2022 and 2023. They also indicate that women are disproportionately affected both from sharing and from the quantity of images distributed, approximately 28 times higher than those with a male subject (Di Silvestro & Iurissevich, 2024). In Indonesia, for example, deepfake pornography is suspected to be created using the face of two actresses (Abidin et al., 2023). A study also states that deepfake pornography is arguably enabled by male consumers and producers, which makes it a gendered phenomenon (Öhman, 2020). It can be argued that victims of Deepfake pornography are victims of sexual violence. These victims often suffer prejudice from others due to manipulated images and videos, which can encourage bullying. Not only that, they also suffer from depression, traumatic flashback, and Post-Traumatic Stress Disorder (PTSD) (Solichah, et al., 2023).

**2. Fake Political News**

The emergence of deepfake technology among society, especially in Indonesian society, has exacerbated the problem of hatred and fake news, which have been rapidly increasing. In the past, creating fake videos required a large amount of skill, time, and money. Nowadays, however, all it takes to create those fake videos is a powerful computer, internet connection, and some knowledge about artificial intelligence (Botha & Pieterse, 2020). Deepfake technology can produce highly convincing videos of politicians or public figures making statements or taking actions that never occurred. Such fake content can sway public opinion, distort the democratic process, and even incite violence.

One major issue related to fake political news is its dissemination through social media platforms. According to a survey conducted by Mastel in 2019, 92.4% of hoaxes spreading on social media in Indonesia contained political or SARA (ethnic, religious, racial, and intergroup) content (Mastel, 2019). Deepfake technology amplifies this problem by creating manipulated

media that appears authentic, making it more difficult for the public to discern truth from fabrication (Westerlund, 2019; Mahmud & Sharmin, 2021). For example, during election campaigns, deepfake videos can be used to spread misinformation about candidates. A fabricated video of a candidate making discriminatory remarks or engaging in illegal activities can influence voters' perceptions and decisions (de Ruiter, 2021). Such use of deepfakes not only undermines the integrity of elections but also erodes trust in political systems and institutions (Kaan Tuysuz & Kılıç, 2023). Additionally, deepfake technology can be weaponized to defame public officials or activists, misrepresenting their views or actions. This can lead to severe reputational damage, legal consequences, and even threats to personal safety. A study by Temir (2020) highlights that deepfakes mark the "end of reliable journalism," as they contribute to an era of disinformation where traditional media struggles to keep up with the verification of manipulated content (Rana et al., 2022).

Studies have also pointed out that deepfake-generated fake news is often shared more rapidly than genuine news on social media platforms, exacerbating its impact (Jaiman, 2020; Al-Khazraji et al., 2023). Not only that, a study also states that most people in developed economies will consume false information in a larger proportion compared to true information (Gambín et al., 2024). Moreover, methods for detecting and mitigating the negative effects of these fake videos are designed for offline media and not livestreams (Frankovits & Mirsky, 2023). The challenges in detecting and debunking these manipulated videos highlight the need for advanced technological solutions and legal frameworks to combat this threat (Khimi et al., 2024).

The use of deepfakes in political contexts necessitates stringent regulations and the development of detection tools to combat their spread. Public awareness campaigns are also essential to educate individuals about the risks of deepfake content and to promote critical media literacy (Solichah et al., 2023). Digital literacy is also important to be taught to individuals to make them capable of differentiating true information and false information

(Mutmainnah et al., 2024).

### 3. Fraudulent Activities

With the advancement of artificial intelligence, deepfake technology has become capable of creating fake, yet convincing audio, video, and image content. This makes it easier for criminals to commit identity theft, social engineering, and other cybercrimes. Deepfake technology can be used to commit identity theft on a personal level. This is achieved by disguising the perpetrator as someone else inside a fake content in order to commit fraud. This may include imitating someone's voice to pose as the CEO of a company in order to make fake transactions, which is referred to as voice phishing. Not only that, deepfakes can be used in social engineering assaults by tricking someone into sharing their private information or committing illegal activities (Ahmad et al., 2024).

Several researches show that there has been explosive and significant growth in the usage of deepfakes for fraudulent activities. In the United States, the proportion of deepfake-related frauds in the overall numbers of fraudulent crimes increased from 0,2% to 2,6% from 2022 to 2023. Meanwhile, in Canada, the proportion increased from 0,1% to 4,6%. Not only that, research shows that during the same period, there was a 1530% increase of deepfake-related frauds within the Asia-Pacific region. Not only that, there was also a 450% increase of deepfake-related frauds in Africa and 411% in Latin America (Volkova, 2024). In Indonesia specifically, it is observed that there was a 1550% increase in deepfake-related frauds (Ferdiansyah & Kholiq, 2024).

In the case of voice phishing, deepfake technology is usually used in the form of voice-generating software. This is often accompanied by schemes such as business email compromise, which is possible to be done as the victims feel at ease due to recognizing the speaker's voice. It has been analyzed that any organization can fall for this scheme For two cases, it is identified that the estimated loss reaches US$35.000.000 and US$243.000 (de Rancourt-Raymond & Smaili, 2023). Another case happened in 2019, where

fraudsters asked the CEO of a British energy company to send AC 220.000 to a bank in Hungary by disguising their voice as the voice of the parent company's CEO (Sandoval et al., 2024). On a smaller scale, this crime is used to trick victims for financial gains by taking advantage of their desire for a genuine relationship. This is often referred to as romance fraud. An analysis states that millions of individuals globally lose money to this crime each year (Cross, 2022).

Despite the threat it poses, there has been many researches and actions performed to mitigate or prevent deepfake-related fraudulent activities. In Indonesia, for example, there is a law that states that actions related to the creation or alteration of Electronic Information and / or Electronic Documents belonging to other people or belonging to the public that are misleading are illegal acts. Not only that, there is also a law that obliges the government to implement a security system to protect the public against pages and websites that are not officially registrated on the Indonesian server (Ferdiansyah & Kholiq, 2024). There are also researches about using automated systems and deep learning to combat the negative impact of deepfake technology (Ahmed et al., 2022; Camargo et al., 2024; Heidari et al., 2024; Kaliyar et al., 2020; Patil et al., 2023; Tiwari et al., 2023).

## CONCLUSION

Deepfake technology, a combination of deep learning and fake content, has brought significant challenges to various aspects of society. This essay has discussed three major issues caused by the misuse of deepfake technology: pornography, fake political news, and fraudulent activities. Deepfake pornography disproportionately targets women, causing severe psychological harm and social stigma. Similarly, the use of deepfakes in politics undermines trust in democratic systems by spreading misinformation and manipulating public opinion. Lastly, the rise of deepfake-related fraudulent activities, such as voice phishing and identity theft, showcases the potential economic and social damage this technology can cause.

To mitigate these threats, it is important to implement advanced detection

tools, strengthen legal frameworks, and promote public awareness about the risks of deepfake technology. Collaborative efforts between governments, technology developers, and society are important to address the challenges posed by this rapidly advancing technology. By taking proactive measures, it is possible to reduce the negative impacts of deepfakes and harness their potential for positive uses in the future.

## REFERENCES


Abidin, M. I., Adha, A. F., Yuniyanti, S. S., & Chairunnisa, C. (2023). Legal Review Of Liability From Deepfake Artificial Intelligence That Contains Pornography. *MIMBAR : Jurnal Sosial Dan Pembangunan*, *79*, 344–352. https://doi.org/10.29313/mimbar.v39i2.2965

Ahmad, J., Khan, H., Salman, W., Amin, M., Ali, Z., & Shokat, S. (2024). A Survey on Enhanced Approaches for Cyber Security Challenges Based on Deep Fake Technology in Computing Networks. Spectrum of Engineering Science, 2(3), 133–149.

Ahmed, S. R., Sonuç, E., Ahmed, M. R., & Duru, A. D. (2022). Analysis Survey on Deepfake detection and Recognition with Convolutional Neural Networks. 2022 International Congress on Human-Computer Interaction, Optimization and Robotic Applications (HORA), 1–7.

Al-Khazraji, S. H., Saleh, H. H., Khalıd, A. I., & Mıshkhal, I. A. (2023). Impact of Deepfake Technology on Social Media: Detection, Misinformation and Societal Implications. *Eurasia Proceedings of Science, Technology, Engineering and Mathematics*, *23*(October), 429–441. https://doi.org/10.55549/epstem.1371792

Anh, N. B. T. (2021). Deepfake and Its Ethics Concerns. *Researchgate.Net*, *October*, 0–7. https://www.researchgate.net/profile/Anh-Nguyen-Bui/publication/357419167_DEEPFAKE_AND_ITS_ETHICS_CONCERNS/links/61cd5d18d4500608167814ab/DEEPFAKE-AND-ITS-ETHICS-CONCERNS.pdf

Botha, J., & Pieterse, H. (2020). Fake news and deepfakes: A dangerous threat for 21st century information security. *Proceedings of the 15th International*

*Conference on Cyber Warfare and Security, ICCWS 2020*, 57–66. https://doi.org/10.34190/ICCWS.20.085

Camargo, J. A. T., Mellizo, R. A. M., & Narvaez, J. J. C. (2024). Automated Machine Learning Prototype for Detecting Phishing, Deepfakes, and Fraudulent Audio Patterns: A Systematic Literature Mapping. Advances in Computing, 2208, 283–297.

Cross, C. (2022). Using Artificial Intelligence (AI) and Deepfakes to Deceive Victims: The Need to Rethink Current Romance Fraud Prevention Messaging. Crime Prevention and Community Safety, 24, 30–41.

de Rancourt-Raymond, A., & Smaili, N. (2023). The Unethical Use of Deepfakes. Journal of Financial Crime, 30(4), 1066–1077.

de Ruiter, A. (2021). The Distinct Wrong of Deepfakes. Philosophy and Technology, 34(4), 1311–1332. https://doi.org/10.1007/s13347-021-00459-2

Di Silvestro, L., & Iurissevich, C. (2024). Contemporary Pornography: Deepfake as A Form of Abuse. European Public and Social Innovation Review, 9, 1–20. https://doi.org/10.31637/epsir-2024-370

Ferdiansyah, R., & Kholiq, A. (2024). CHALLENGES AND OPPORTUNITIES OF INDONESIAN ELECTRONIC SYSTEM OPERATOR REGULATION IN FACING ILLEGAL DEEPFAKE WEBSITE PHENOMENON. Syiah Kuala Law Journal, 8(3), 595–613.

Frankovits, G., & Mirsky, Y. (2023). Discussion Paper: The Threat of Real Time Deepfakes. *WDC 2023 - Proceedings of the 2nd Workshop on the Security Implications of Deepfakes and Cheapfakes, Held in Conjunction with ACM AsiaCCS 2023*, 20–23. https://doi.org/10.1145/3595353.3595881

Gambín, Á. F., Yazidi, A., Vasilakos, A., Haugerud, H., & Djenouri, Y. (2024). Deepfakes: current and future trends. In *Artificial Intelligence Review* (Vol. 57, Issue 3). Springer Netherlands. https://doi.org/10.1007/s10462-023-10679-x

Heidari, A., Jafari Navimipour, N., Dag, H., & Unal, M. (2024). Deepfake detection using deep learning methods: A systematic and comprehensive review. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 14(2), 1–45. https://doi.org/10.1002/widm.1520

Jaiman, A. (2020). Debating the Ethics of Deepfakes. In Tackling Insurgent Ideologies in a Pandemic World (Vol. 11, Issue 1, pp. 75–79).

Kaan Tuysuz, M., & Kılıç, A. (2023). Analyzing the Legal and Ethical Considerations of Deepfake Technology. Interdisciplinary Studies in Society, Law, and Politics, 2(2), 4–10. https://doi.org/10.61838/kman.isslp.2.2.2

Kaliyar, R. K., Goswami, A., & Narang, P. (2020). DeepFakE: improving fake news detection using tensor decomposition-based deep neural network. The Journal of Supercomputing, 77, 1015–1037.

Khimi, W., Albarqi, K., Saif, K., & Elhag, S. (2024). A Systematic Review on Deep Fake Image Generation, Detection Techniques, Ethical Implications, and Overcoming Challenges. International Journal of Computers and Informatics, 3(8), 37–80. https://doi.org/10.59992/ijci.2024.v3n8p3

Mahmud, B. U., & Sharmin, A. (2021). Deep Insights of Deepfake Technology : A Review. http://arxiv.org/abs/2105.00192

Mutmainnah, A., Suhandi, A. M., & Herlambang, Y. T. (2024). Problematika Teknologi Deepfake sebagai Masa Depan Hoax yang Semakin Meningkat: Solusi Strategis Ditinjau dari Literasi Digital. *UPGRADE : Jurnal Pendidikan Teknologi Informasi*, *1*(2), 67–72. https://doi.org/10.30812/upgrade.v1i2.3702

Öhman, C. (2020). Introducing the pervert's dilemma: a contribution to the critique of Deepfake Pornography. Ethics and Information Technology, 22(2), 133–140. https://doi.org/10.1007/s10676-019-09522-1

Patil, K., Kale, S., Dhokey, J., & Gulhane, A. (2023). *Deepfake Detection using Biological Features: A Survey*. http://arxiv.org/abs/2301.05819

Rana, M. S., Nobi, M. N., Murali, B., & Sung, A. H. (2022). Deepfake Detection: A Systematic Literature Review. IEEE Access, 10, 25494–25513. https://doi.org/10.1109/ACCESS.2022.3154404

Sandoval, M. P., de Almeida Vau, M., Solaas, J., & Rodrigues, L. (2024). Threat of deepfakes to the criminal justice system: a systematic review. Crime Science, 13(1), 1–16. https://doi.org/10.1186/s40163-024-00239-1

Solichah, et al., 2023. (2023). Comparative Study of Post-Marriage Nationality Of Women in Legal Systems of Different Countries Protection of Victims of

Deep Fake Pornography in a Legal Perspective in Indonesia. International Journal of Multicultural and Multireligious Understanding, 10(1), 383–390. http://ijmmu.comhttp//dx.doi.org/10.18415/ijmmu.v10i1.4409

Temir, E. (2020). Deepfake: New Era in The Age of Disinformation & End of Reliable Journalism. SelçİletişiDergisi, 13(2), 1009–1024. https://doi.org/10.18094/JOSC.685338

Tiwari, A., Dave, R., & Vanamala, M. (2023). Leveraging Deep Learning Approaches for Deepfake Detection: A Review. Proceedings of the 2023 7th International Conference on Intelligent Systems, Metaheuristics & Swarm Intelligence, 12–19.

Volkova, S. (2024). The Dark Side of Deepfakes: Fraud and Cybercrime. In Deepfakes and Their Impact on Business (pp. 221–240).

Westerlund, M. (2019). The Emergence of Deepfake Technology: A Review. Technology Innovation Management Review, 9(11), 39–52. https://doi.org/10.22215/TIMREVIEW/1282