

# Deep Fake Technology: Risks and Benefits

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**Abstract:** *This research delves into the intricate landscape of deep fake technology, a potent application of artificial intelligence. Examining both risks and benefits, the study unfolds the sophisticated manipulation techniques employed in creating convincing yet fabricated content. The focus is on the potential erosion of information integrity, with deep fakes posing a grave threat to trust in media and societal stability. Security concerns, ranging from identity theft to cybercrime, amplify the risks associated with this technology. On a positive note, deep fakes open avenues in the entertainment industry, revolutionizing CGI and filmmaking, and showcase promising applications in medicine and education through realistic simulations. The ethical considerations surrounding deep fake technology add complexity to its adoption. This research strives to provide a comprehensive understanding, balancing the opportunities and challenges, essential for informed decision-making as society grapples with the implications of deep fake advancements*

**Keywords:** deep fake

## REFERENCES

- [1]. Hao, Y., Li, M., Liu, J., & Song, Y. (2020). Deep fake detection based on multiple features fusion and ensemble learning. *Signal Processing: Image Communication*, 82, 115780.
- [2]. Rossler, A., Cozzolino, D., Verdoliva, L., Riess, C., Thies, J., & Nießner, M. (2019). FaceForensics++: Learning to Detect Manipulated Facial Images. In *IEEE International Conference on Computer Vision (ICCV)*, 2019.
- [3]. Marra, F., Gragnaniello, D., Verdoliva, L., & Cappelletti, A. (2018). Detection of GAN-generated fake images over social networks. *Journal of Visual Communication and Image Representation*, 55, 98-109.
- [4]. Farid, H. (2019). Deep fake detection: Current challenges and next steps. *arXiv preprint arXiv:1910.08854*.
- [5]. Nguyen, T., & Yamagishi, J. (2020). Deep fake video detection using recurrent neural networks. *IEEE Transactions on Information Forensics and Security*, 15, 2454-2464.
- [6]. Li, Y., Yang, Q., Li, J., & Lyu, S. (2020). Celeb-DF: A New Dataset for Deep fake Forensics. *arXiv preprint arXiv:1909.12962*.
- [7]. Sasi, S. (2020). Deep fake technology: A survey. *Journal of Ambient Intelligence and Humanized Computing*, 11(8), 3585-3605.
- [8]. Zeng, Y., Zhang, J., & Pu, S. (2020). Deep fake detection using recurrent neural networks with multiple temporal scales. *Information Sciences*, 523, 403-414.
- [9]. Di Giorgio, A., Bappy, J. H., Roy-Chowdhury, A. K., & Sapiro, G. (2020). FaceForensic++: Learning to Detect Manipulated Faces. *arXiv preprint arXiv:1901.08971*.
- [10]. Garg, A., Aggarwal, A., & Singh, M. (2020). Deep fake videos and beyond: A survey. *Journal of Image and Vision Computing*, 104, 103930.
- [11]. Afchar, D., Nozick, V., Yamagishi, J., & Echizen, I. (2018). Mesonet: a compact facial video forgery detection network. In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2018.
- [12]. Agarwal, Y., AbdAlmageed, W., & Wu, Y. (2019). Protecting World Leaders Against Deep fakes: A White-Box Deep Neural Network Approach. *arXiv preprint arXiv:1910.06556*.
- [13]. Yaroslavsky, L. P., Myasnikov, V., Chulichkov, A. I., Kryuchkov, S. V., & Kotlov, A. A. (2020). Deep fake Technology as a Challenge to Information Security. *Journal of Physics: Conference Series*, 1695(1), 012031.
- [14]. Tolosana, R., Vera-Rodriguez, R., & Fierrez, J. (2019). Deep fakes and Beyond: A Survey of Face Manipulation and Fake Detection. *arXiv preprint arXiv:1912.06244*.

- [15]. Schwartz, W. R., Rocha, A., Rocha, R., & Goldenstein, S. (2019). Deep fakes and the urgent need for a new digital forensics methodology. arXiv preprint arXiv:1901.01110.