



Unmasking Deepfakes: Using Resnext and LSTM to Detect Deepfake Videos

Shilpa B¹, Abhishek B K², Anush Kamath³, Hemanth Bhat⁴, Sathwik A M⁵

Assistant Professor, Department of Information Science & Engineering¹

Students, Department of Information Science & Engineering^{2,3,4,5}

Canara Engineering College, Mangalore, Karnataka, India

Abstract: *This paper proposes an approach for detecting deepfake videos using Resnext CNN and LSTM. The proposed approach involves training a Resnext CNN on a dataset of real and deepfake videos to classify them accurately. The Resnext CNN takes video frames as input and outputs a probability score for each frame, which is then fed into an LSTM to model the temporal dynamics of the video. The approach was evaluated on a dataset of real and deepfake videos and achieved promising results. The proposed approach can be used to detect deepfake videos, which can help in preventing the spread of misinformation and safeguarding our society.*

Keywords: Deepfakes, Neural Networks, long short-term memory, Convolutional Neural Networks.

REFERENCES

- [1]. He, K., Zhang, X., Ren, S., & Sun, J. (2016). Deep residual learning for image recognition. Proceedings of the IEEE conference on computer vision and pattern recognition, 770-778.
- [2]. Xie, S., Girshick, R., Dollár, P., Tu, Z., & He, K. (2017). Aggregated residual transformations for deep neural networks. Proceedings of the IEEE conference on computer vision and pattern recognition, 1492-1500.
- [3]. Hochreiter, S., & Schmidhuber, J. (1997). Long short-term memory. Neural computation, 9(8), 1735-1780.
- [4]. Rossler, A., Cozzolino, D., Verdoliva, L., Riess, C., Thies, J., & Nießner, M. (2019). FaceForensics++: Learning to detect manipulated facial images. Proceedings of the IEEE International Conference on Computer Vision, 1-11.
- [5]. Suwajanakorn, S., Seitz, S. M., & Kemelmacher-Shlizerman, I. (2017). Synthesizing obama: Learning lip sync from audio. ACM Transactions on Graphics, 36(4), 95.
- [6]. Wang, Y., Qiao, Y., & Tang, X. (2020). Deepfake video detection using relative entropy and recurrent neural networks. IEEE Transactions on Information Forensics and Security, 15, 2582-2597.
- [7]. <https://github.com/ondyari/FaceForensics>
- [8]. <https://www.kaggle.com/c/deepfake-detectionchallenge/data>