

ABSTRACT

As the prevalence of deepfake videos continues to escalate, there is an urgent need for robust and efficient detection methods to mitigate the potential consequences of misinformation and manipulation. This abstract explores the application of Long Short-Term Memory (LSTM) networks in the realm of deepfake video detection. LSTM, a type of recurrent neural network (RNN), has proven to be adept at capturing temporal dependencies in sequential data, making it a promising candidate for analyzing the dynamic nature of videos. The research delves into the intricacies of utilizing LSTM architectures for the detection of deepfake videos, emphasizing the significance of understanding temporal patterns inherent in manipulated content. The proposed methodology involves preprocessing of video data, including the creation of high-quality training datasets and the application of data augmentation techniques to enhance model generalization. The training process and optimization strategies specific to LSTM networks are explored to achieve optimal performance in deepfake detection. Evaluation metrics such as accuracy, precision, recall, and F1 score are employed to assess the model's effectiveness in distinguishing between genuine and manipulated content. The abstract also addresses challenges and limitations inherent in deepfake detection, including mitigating false positives and negatives, and discusses potential avenues for future research to enhance the robustness of LSTM-based detection systems. The findings of this research have implications for real-world applications, particularly in the context of social media platforms and video hosting services, where the integration of LSTM-based deepfake detection can contribute to a safer and more secure online environment.