VARDHAMAN COLLEGE OF ENGINEERING

(AUTONOMOUS)

Affiliated to JNTUH, Approved by AICTE, Accredited by NAAC with A++ Grade, ISO 9001:2015 Certified Kacharam, Shamshabad, Hyderabad – 501218, Telangana, India

Detecting Deep Fakes: A Deep Learning Approach

Abstract

Deep fake technology, powered by advanced machine learning algorithms, poses a significant challenge to the authenticity and integrity of multimedia content. These synthetic media productions, often generated using generative adversarial networks or autoencoder architectures, exhibit convincing simulations of human faces and behaviours. To counter this, deep fake detection has evolved through various methodologies, including forensic analysis, behavioural cues scrutiny, and deep learning-based classification. Attention mechanisms, inspired by human visual perception, can be a promising avenue for enhancing detection. Existing attention mechanisms have been integrated into deep fake detection pipelines, but novel advancements in attention mechanisms are necessary to overcome the evolving sophistication of deep fakes. These could involve integrating self-attention networks, spatiotemporal attention mechanisms, attention-based explanations, and fusion of attention mechanisms with other modalities like audio and text. Additionally, reinforcement learning techniques could be augmented to adapt to evolving deep fake generation techniques.

Keywords: Deep fake technology, Machine learning algorithms, Generative adversarial networks, Autoencoder architectures, Multimedia content, Synthetic media productions, Deep fake detection, Attention mechanisms, Spatiotemporal attention mechanisms, Reinforcement learning

Team-39 Members:

21881A6667-A Sumeth Kumar

21881A6675-Chavali Sai Sreekar

22885A6608-A Maharshi

GUIDE

Vijaylaxmi Bhure

Assistant Professor