MALLA REDDY COLLEGE
OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS INSTITUTION - UGC, GOVT. OF INDIA)
Affiliated to JNTUH; Approved by AICTE, NBA-Tier 1 & NAAC with A-GRADE | ISO 9001:2015

DEPARTMENT OF COMPUTATIONAL INTELLIGENCE

III YEAR CSE - AIML II SEM

COURSE: APPLICATION DEVELOPMENT - 2 **COURSE CODE: R22A66933**

DEEPFAKE DETECTION SYSTEM USING DEEP LEARNING TEHNIQUES

ABSTRACT

This project focuses on developing a robust system to detect deepfake content, including images, videos, and audio, using advanced deep learning techniques. With the rise of deepfake technology, existing detection systems often struggle to maintain accuracy. These systems lack comprehensive multimodal analysis, limiting their ability to detect inconsistencies across visual and audio data.

A CNN is used for analyzing individual video frames to identify signs of manipulation, an RNN to study motion patterns like lip-sync and facial movements, and an audio model to ensure synchronization between speech and visuals. By combining outputs from these models, the system delivers more reliable and accurate detection results. Key technologies include Explainable AI (XAI) for interpretability, adversarial robustness techniques to handle manipulations, and real-time detection for practical applications.

Keywords: Convolutional Neural Networks (CNN), Recurrent Neural Networks (RNN), Audio-Visual Synchronization , Explainable AI (XAI).

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