DEEPFAKE VIDEO DETECTION

PROBLEM STATEMENT

Deepfake videos have become a major concern with the rise of AI-generated content. These videos can manipulate faces, voices, and expressions so realistically that it's hard to tell what's real and what's fake. This has led to serious issues like misinformation, identity theft, and political deception.

PROJECT OVERVIEW

Our team developed a Deepfake Detection Web-App to identify manipulated videos and curb the spread of false information.Using deep learning models like ResNext and LSTM, the system analyzes video frames to determine their authenticity. It processes uploaded videos videos by extracting frames, detecting faces, and classifying them as real or fake. The web app features a Streamlit-based frontend ensuring a smooth and user-friendly experience. Additionally, it provides a confidence score, offering users a clear understanding of how how certain the model is about its prediction.

SOLUTION OFFERED

The solution consists of multiple components working together to detect deepfake videos efficiently. The processing module extracts frames from uploaded videos, detects faces, and analyzes them using ResNext and LSTM deep learning models. The classification module evaluates the extracted frames and determines whether the video is real or manipulated, providing a confidence score for better transparency. The user interface module, built with Streamlit, offers a simple and intuitive web-based platform where users can easily upload videos, view results, and understand the model's predictions. This end-to-end system ensures accurate, fast, and accessible deepfake detection for various applications.

WHO ARE THE END USERS?

Media Organizations, Cybersecurity Experts, Government Agencies, Social Media Platforms

TECHNOLOGY USED TO SOLVE THE PROBLEM

Deep Learning:

ResNext & LSTM : Used for deepfake detection by analyzing video frames.
Pytorch : Framework used to train and optimize deep learning models.

Video Processing:

OpenCV : Extracts frames , detects faces, and preprocesses video data for analysis.

Frontend Development:

Streamlit : Provides a user-friendly web interface for uploading videos

Backend & Deployment:

User uploads video, Video Processing, Preprocessing, Deepfake Detection, Prediction Display