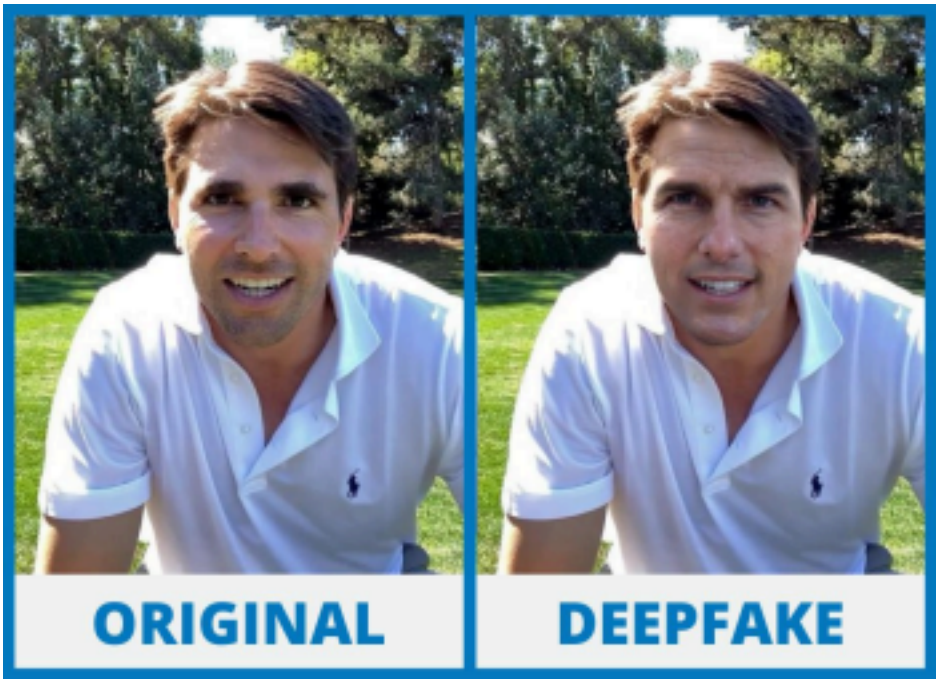
Project Task: DeepFake Detection

Overview

DeepFake Detection is the task of detecting fake videos or images that have been generated using deep learning techniques. Deepfakes are created by using machine learning algorithms to manipulate or replace parts of an original video or image, such as the face of a person.

The goal of deepfake detection is to identify such manipulations and distinguish them from real videos or images.

An example is given below:



Task Details

The goal of this task is to implement and evaluate a **Deepfake detection** model. Train and evaluate image super-resolution models on the given dataset.

You are expected to:

- **Understand the problem**: Study the importance and challenges in deepfake detection.
- **Analyse existing solutions**: Explore existing deep learning models used for deepfake detection.
- **Propose your approach**: Choose or design a model, justify why it fits the problem, and train it on the given dataset.
- **Evaluate results**: Measure the performance using relevant metrics (e.g., AUC, Precision, Accuracy).

- **Comparative Study**: Compare your results with current benchmarks or models and reflect on the differences.

Dataset Details

Dataset Link: Google Drive
The dataset is separated into **train** and **test** sets. Each set contains real and fake videos. Preprocess the data as needed, and utilise it effectively to train, validate, and test different pose detection models on the same.

Submission Format

A **comprehensive documentation** describing your work, including the following things:

1. **Introduction**
   Brief overview of your work and learnings in the project.
2. **Thought Process**
   Understanding of the task, literature review, and how you arrived at your approach.
3. **Blockers**
   Challenges, difficulties and roadblocks faced by you during the project.
4. **Approach**
   Description of your method, including model architecture, preprocessing steps, training procedure, hyperparameters, etc.
5. **Comparative Study**
   Comparison between your results and baseline/state-of-the-art methods. Discuss strengths and shortcomings.
6. **Results**
   Performance metrics, evaluation methods, and qualitative or quantitative results. Include AUC and accuracy in the results.
7. **Future Prospects**
   Ideas for further improvement or research directions beyond the current project.
8. **Appendix (if any)**
   Additional materials such as diagrams, code snippets, or additional results.