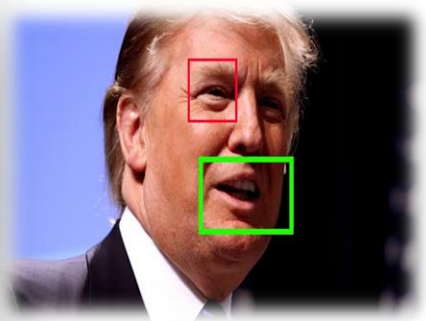# Deepfake video detection

Deepfake creation

Why Deepfake Detection ?

Objective : Our project aims at detecting the realistic human synthesized videos popularly known as deepfakes.

- Fake News
- Malicious hoaxes
- Financial fraud
- Revenge porn
- Politician videos
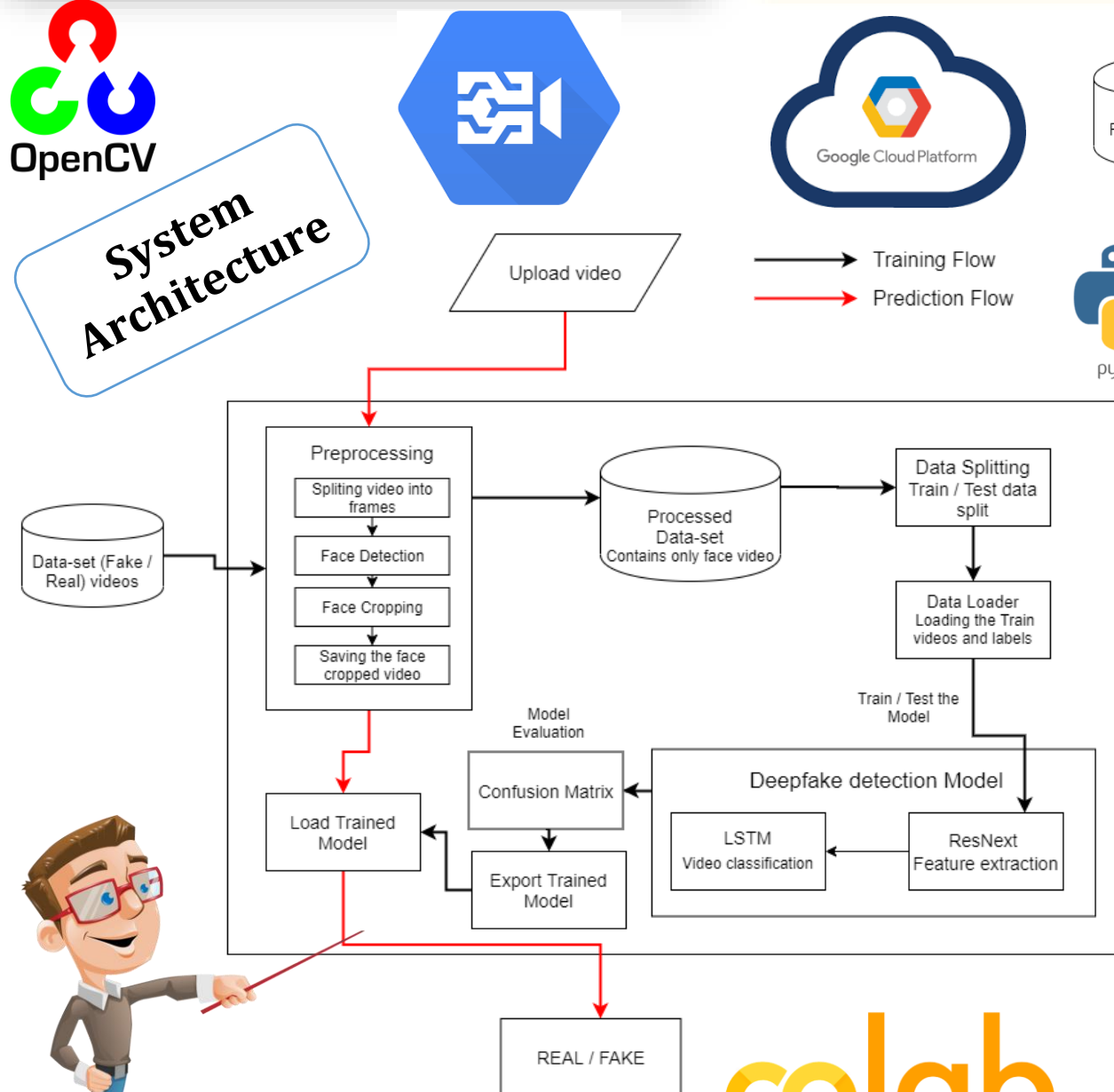
Creation tools.
- Faceswap
- Faceit

Application :

Our web based application will help identify whether the video is Real or Fake

OpenCV

System Architecture

Google Cloud Platform

FaceForensic++ 2000 videos

Deepfake Detection Challenge Dataset 3000 videos

Celeb-DF Dataset 1000 videos

New Dataset 6000 videos

python

GPU

PyTorch

Upload video

→ Training Flow
→ Prediction Flow

Data-set (Fake / Real) videos

Preprocessing
- Splitting video into frames
- Face Detection
- Face Cropping
- Saving the face cropped video

Processed Data-set Contains only face video

Data Splitting Train / Test data split

Data Loader Loading the Train videos and labels

Train / Test the Model

Model Evaluation

Confusion Matrix

Deepfake detection Model

LSTM Video classification

ResNext Feature extraction

Load Trained Model

Export Trained Model

REAL / FAKE

colab

Split the video to Frames

Detect and Crop Faces

New Face cropped video

Dataset — Pre-processing — Model — Result

New Face cropped video

Split the video to Frames

Feature Extraction ResNext-50-32x4d

Sequence Learning and Video Classification LSTM

REAL / FAKE

Conclusion :
We presented a LSTM based approach to detect the video as deep fake or real, by processing 1 sec of video with good accuracy.

GROUP ID :- 21   *Prajwal Chaudhari*   *Aakansha Patil*   *Sakshi Marathe*   *Vaishanavi Patil*