# Deepfake video detection

Real 100% Fake 100%

## Deepfake creation

Original: Fallon    Swapped

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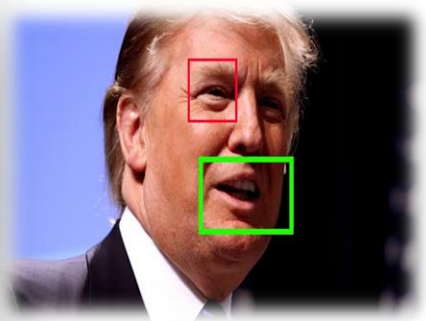
**Objective :** Our project aims at detecting the realistic human synthesized videos popularly known as deepfakes.

## Why Deepfake Detection ?

- 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

### System Architecture

OpenCV

Google Cloud Platform

FaceForensic++    Deepfake Detection Challenge Dataset    Celeb-DF Dataset

2000 videos    3000 videos    1000 videos

New Dataset 6000 videos

Upload video

→ Training Flow
→ Prediction Flow

python

GPU

PyTorch

Dataset | Pre-processing | Result | Model

Split the video to Frames

Detect and Crop Faces

New Face cropped video

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

Data-set (Fake / Real) videos

Processed Data-set Contains only face video

Data Splitting Train / Test data split

Data Loader Loading the Train videos and labels

Model Evaluation

Train / Test the Model

Confusion Matrix

**Deepfake detection Model**

LSTM Video classification    ResNext Feature extraction

Load Trained Model

Export Trained Model

REAL / FAKE

Fake 94%

colab

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.
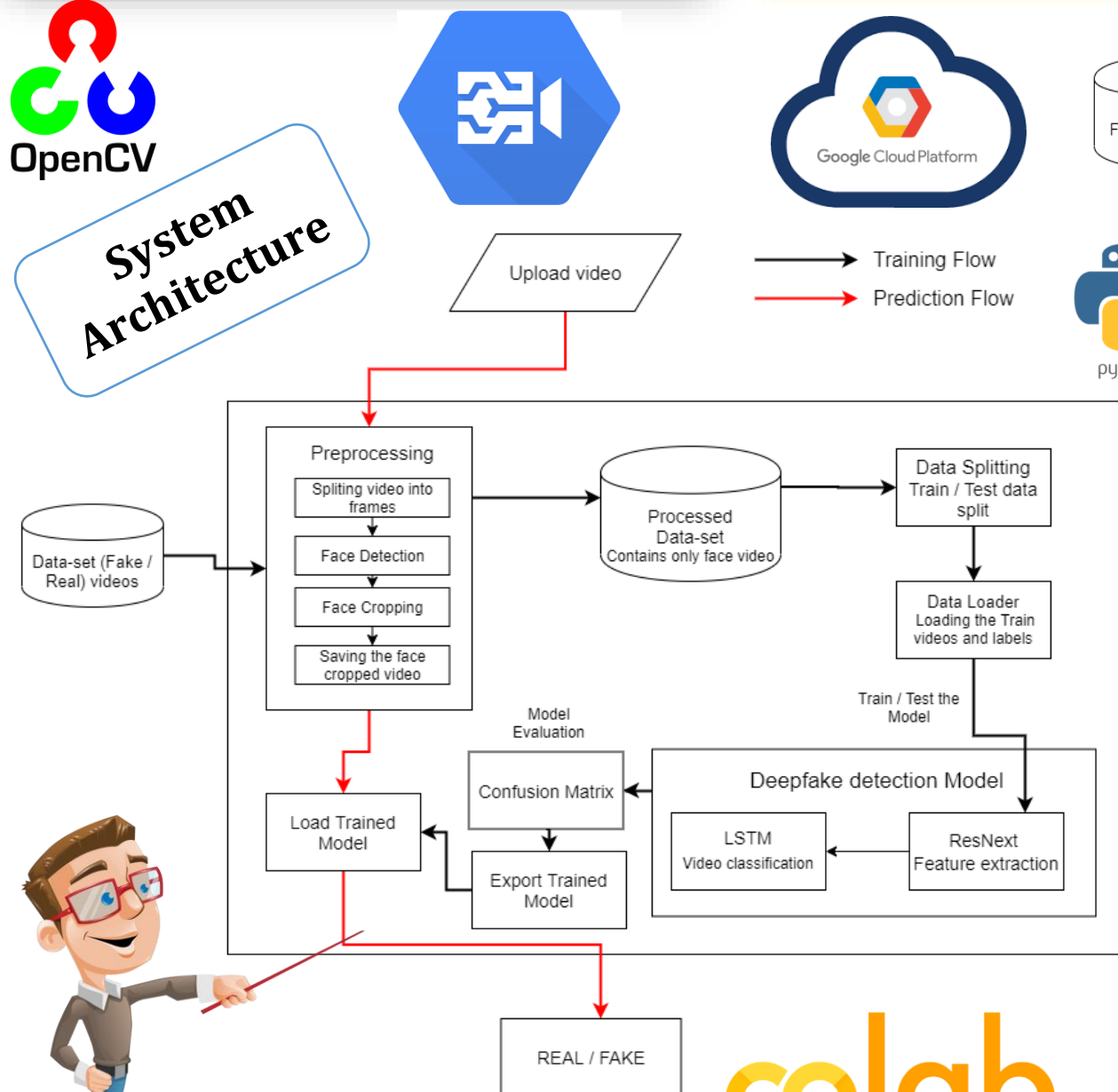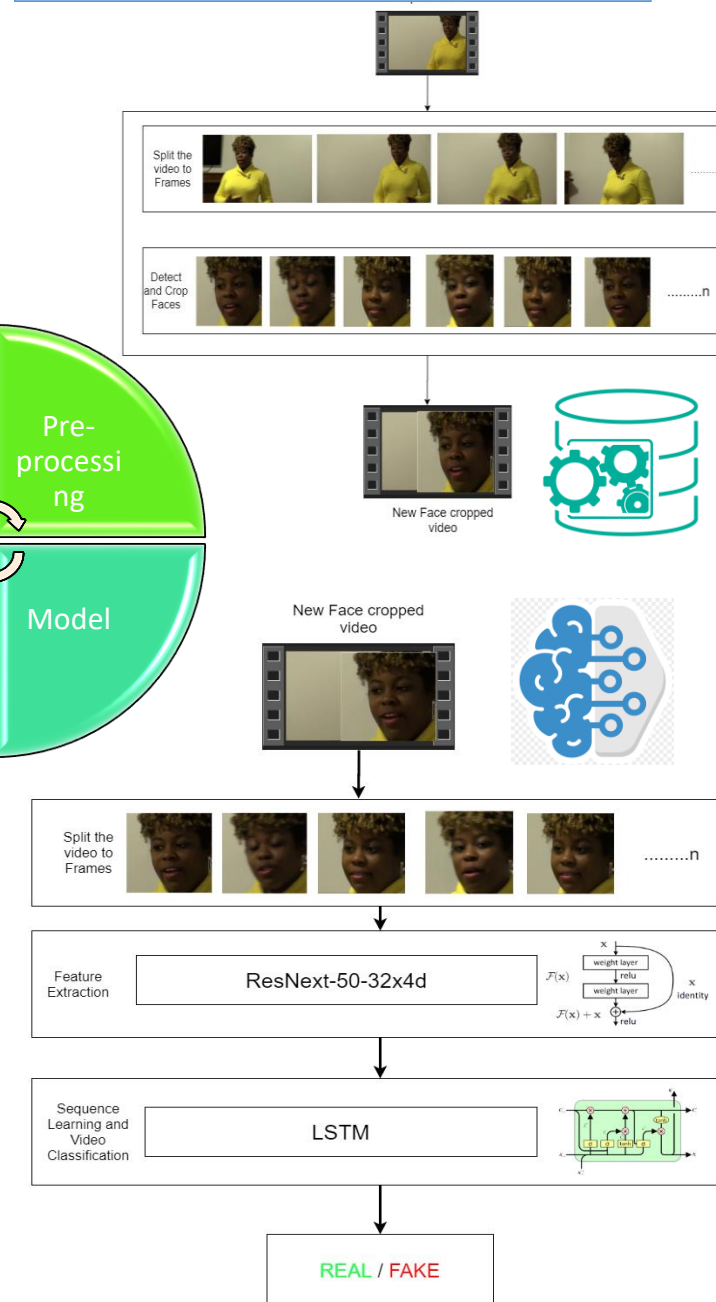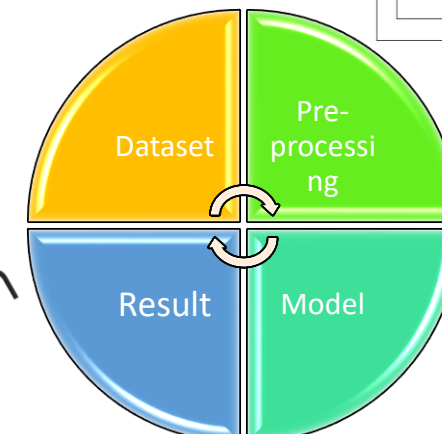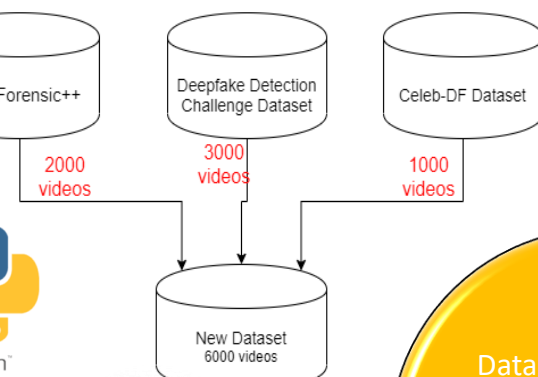
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