Bootstrap Paradox Hackathon
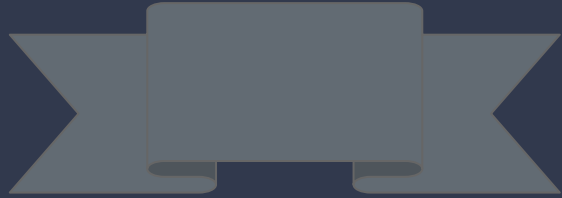
Presented by Blume and Skillenza

Team: Neural_Psychic
1. **Renault**
2. **Utkarsh**

PROBLEM STATEMENTS

1- ……………--------------……………--------------……………

2- ……………--------------……………--------------……………

3- ……………--------------……………--------------……………

4- ……………--------------……………--------------……………

5- ……………--------------……………--------------……………

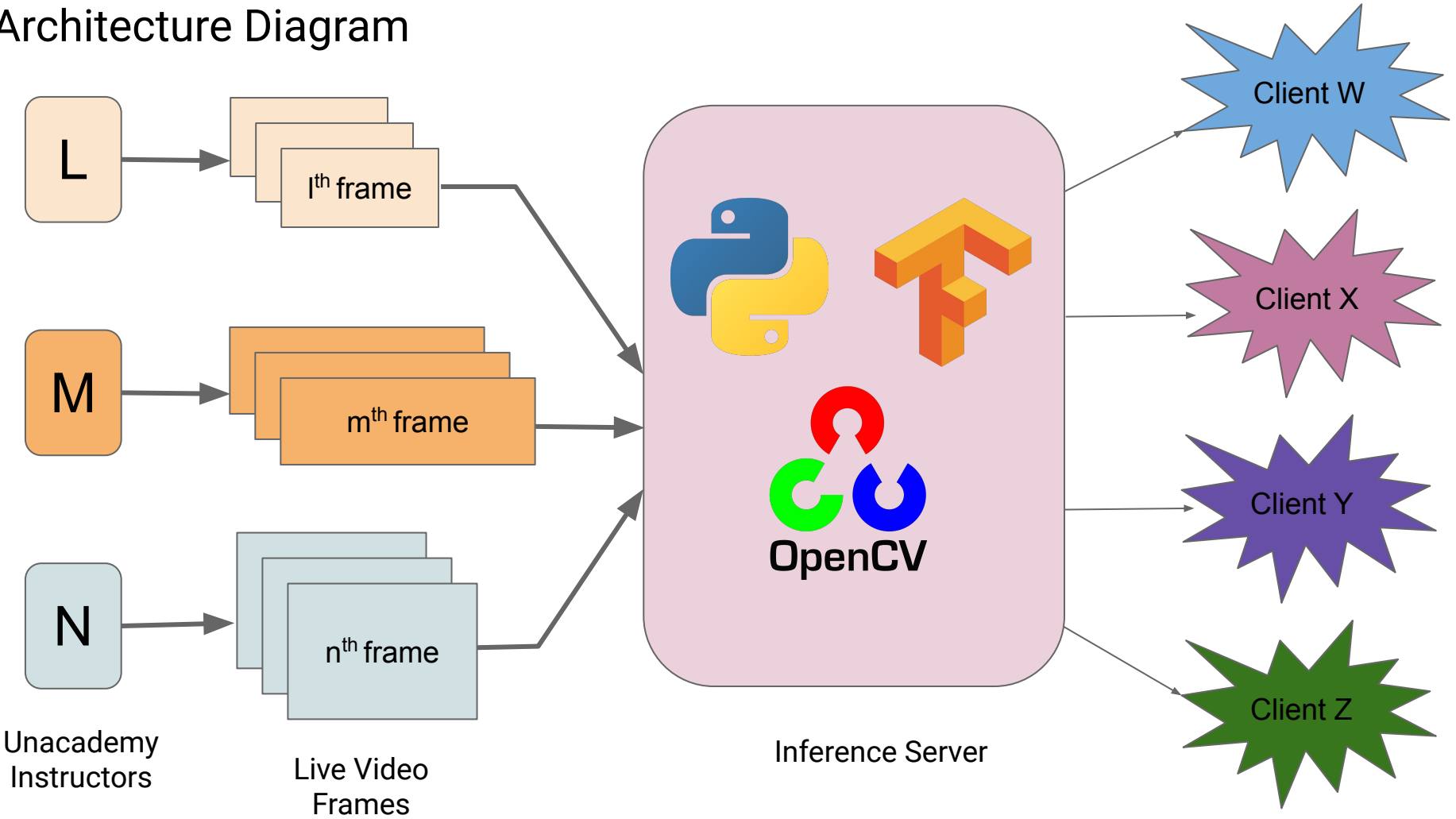6- ………-----------UNACADEMY----------……..

Identify and Remove the Background from the video stream.

Goals

1. To remove the background from instructor videos.
2. To develop a robust algorithm that works in real-time
3. The algorithm will work even when the background consists of real world scenes (curtains, windows, doors, etc)

Architecture Diagram

Unacademy Instructors

Live Video Frames

l^{th} frame

m^{th} frame

n^{th} frame

Inference Server

OpenCV

Client W

Client X

Client Y

Client Z

Work-Flow in the Inference Server

- Suitable Deep Learning Model will be load once.
- With the help of OpenCV and traditional Computer Vision techniques, the removal of background is performed on the video.
- One of the traditional computer vision techniques is Gaussian Blurring to blur the background part of the image.
- MobileNet-V2 model is used to perform the one time inference on the first frame.

Conclusions

1- The MobileNet V2 achieves the state-of-the-art performance on segmenting the instructors from the unacademy video streams at 25 FPS.

2- The size of the model is 27 MB i.e. the portability is still maintained.

3- The model can easily be executed on the CPU. If GPU is allowed, then it's simply awesome.

4- The deep learning approach is robust to every kind of background. It can mask the instructors easily.

5- The model performance is high without sacrificing the accuracy in the video frames.

THANK YOU