Computer Vision

# Assignment 0

## Learning OpenCV & Chroma Keying

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# Task 1:

### Convert a Video into its constituent frames

The video is taken from the ./resources directory and its read in frame by frame by the function. Each frame is then saved into the ./output/task_1/a/ directory.

### Combine frames into a single video

The frames extracted in the previous sub-task are read and written into a video file which is stored in ./output/task_1/b/ directory. We use OpenCV's video writer class for this purpose.

# Task 2:

### Take in the Video feed from the Web Camera and save the frames

The Video feed is read from the camera. This is done by specifying 0 in the VideoCapture class of OpenCV as its parameter. The video feed is taken in from the camera and saved to ./output/task_2/ directory.

# Task 3:

### Chroma Keying

Chroma keying is a technique used for combining two frames or images by replacing a color or a color range in one frame with that from another frame.

It is often used in film industry to replace a scene's background by using a blue or green screen as the initial background and placing the actor in the foreground.

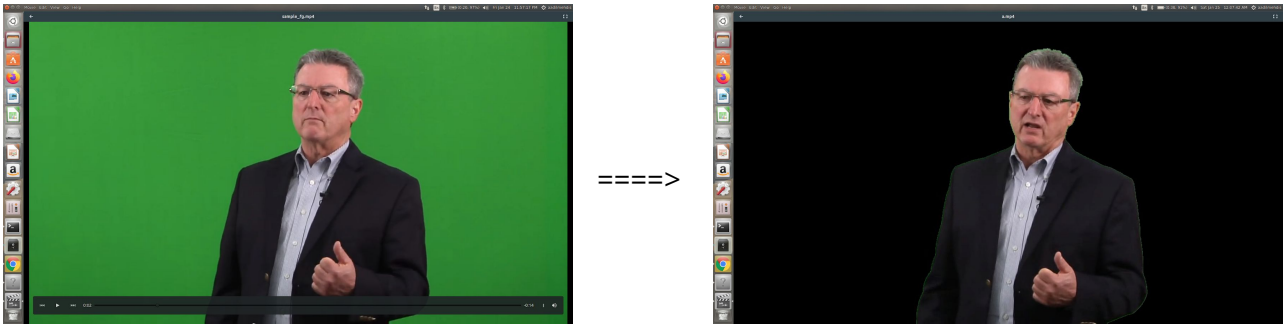
The principle behind chroma keying is that the color blue is the opposite color of skin tone, so the distinction between the two is very clear, making it easier to select the color without

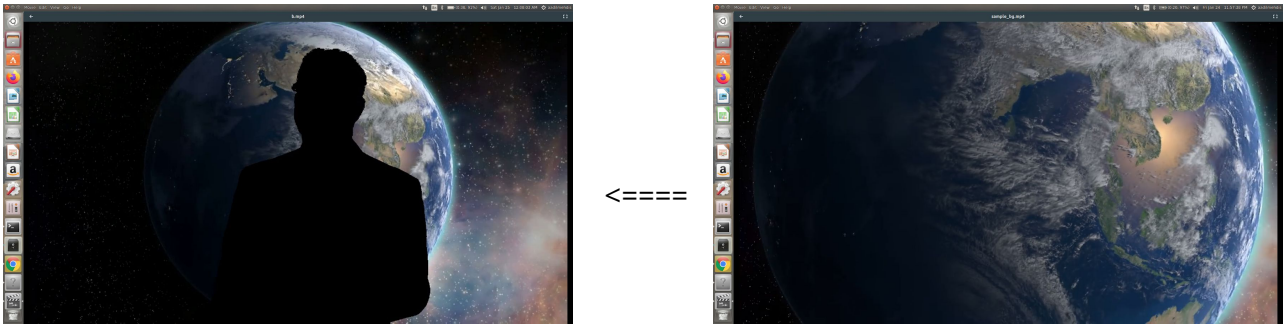
worrying about any part of the actor being included in the selection. The whole blue selection is then replaced with another frame as the background.

## Chroma Keying - Approach

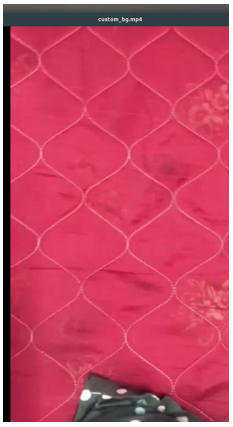
- Define an upper and lower threshold of the color value that you want to remove from your foreground image.
- Read your input foreground image and set the values in the range of your thresholds to [0, 0, 0]
- Read your input background image and set the values of pixel coordinates of your background image to [0, 0, 0] for which the foreground pixels are not [0, 0, 0]
- Finally add the resultant background and foreground pixel values to obtain the final image which is chroma keyed.

## Chroma Keying - Result




sample_final.mp4


custom_bg.mp4