**First Order Motion Model - Feature wise**

**Tittle:** Live-Cam-Animation

**Method**

* In this we introduce webcam functionality where user will come over the webcam and character on the other hand will replicate the motion of the user

**Technique**

* OpenCV , face alignment and first order motion

**Pros**

* Will enable real time animation with user.User can avoid manual video uploading/downloading the video.Cross platform functionality

**Cons**

* Only will work on cropped face,Not working on half/full body animation in webcam

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**Tittle:** Data-Driven Analysis

**Method**

* The data consist of cropped face images with unlimited face style and cropped face videos which can be used as source image and driving video respectively

**Technique**

* Review the data as per our model.Self created data for half/full body animation

**Pros**

* Will work on seen/unseen data.

**Cons**

* Required a lot of data for training the model in all prospect

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**Tittle:** Training

**Method**

* Training consists of data and we are using data of HD resolution to get desired output in HD.

**Technique**

* We trained a separate network for each task. Note that for each task in the background, the object appearance is consistent in each generated video.

**Pros**

* We can change the style,motion, background and also body structure like full/half body

**Cons**

* Have to look or prepare data for each task and train the model accordingly.

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**Tittle :** Key point detection

**Method**

* Keypoints are the same thing as interest points. They are spatial locations, or points in the image that define what is interesting or what stand out in the image. In the model they are using an affine transformation method to estimate the key points locations.

**Technique**

* Algorithms like SIFT/SURF(3rd party) are often used to detect keypoints. In model they are using average keypoint distance method which is keypoint detector (3rd party)

**Pros**

* We can easily identified the image content through key point detection

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**Tittle:** Video Generation

**Method**

* Video generation based on conditional video generation technique which can done with the help of RNN and VAE in to order to generate face video

**Technique**

* RNN , VAE(auto encoder) for face video generation and MoCoGAN (for synthesis the video frames from noise)

**Pros**

* realistic prediction result.

**Cons**

* In case of image animation this spatial deformations are not predicted by the driving video.

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**Tittle:** Face-alignment

**Method**

* We are using 68 landmarks in face alignment also we will test the model for 81 landmarks as well

**Technique**

* Opencv,dlib,cmake,face-recognition

**Pros**

* Can use the key points and adjust the image and frame in cropped section

**Cons**

* Detecting points in 2D/3D but we are using 2D coordinates