Tried Multiple models with CONV 3D architecture.

Initially we tried our architecture with very less data may be less than 10 batches (10 videos, each video has 15 alternative images to capture more information in less data), in which architecture has 3 CONV layer and more than 2 Dense layers with 256,128 respectively.

Since it was very less data, even though lot of parameters, code ran with no other problem.

We have cropped it 150,150 to maintain most of the information, but it was increasing the complexity of the model and since we need to think of faster execution of model on new input, we mainly thought on the reduce the complexity as possible while ensuring it should not impact the accuracy of the Model.

We tried with cropping and resizing, but it has negative impact on the Training accuracy which means model was underfitted. Hence, we used to resize alone with different height, width combination and finally end up with 100,100 structure with same model architecture.

It drastically increases the Training accuracy, but still we are end up with at least 10 million learning parameters which is very huge. So, we started reducing the number of neurons/learning parameter in each later by ensuring no negative impact on the Accuracy.

Finally, with current architecture, we were able to achieve more training accuracy in less than 1.6 million learning parameter which reduces almost 10 times from the initial training parameter but unable to achieve the same training accuracy with the validation data, which is good sign that means model started overfitting.

We started increasing the batch size to understand, what would be the better size to utilize whole power of GPU. When we crossed 40 batch size with 15 images each Kernel was killing. So, we stopped at 40 and trained the whole model for 30 epochs. In that we managed to achieve 100 percent training accuracy and 80 percent validation accuracy.

We are having still room to improve the validation accuracy by consuming more data or even we can try with CONVLSTM model as suggested in the classes.

This model is balanced between less training parameter with more accuracy which ensures to deliver the faster speed when executing with new test dataset.

Model Accuracy,

Training – 100

Validation - 80