Images are resized to 120 \* 120 size.

Batch size is changed according to model

|  |  |  |  |
| --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Train\_Accuracy = 85.65**  **Val\_Accuracy = 23.34**  **In 20 epochs** | **6 CONV3D and 2 dense layers were used initially. The model overfitted maybe due to large number of parameters** |
| **2** | **Conv3D** | **Train\_Accuracy =88**  **Val\_Accuracy = 63** | **Reduced the number of layers to 4. Better performance but still overfitted.** |
| **3** | **Conv3D** | **Train\_Accuracy = 88.42**  **Val\_Accuracy = 87** | **Reduced the layers to 3 and one dense layer. Pretty good results after 14 epochs** |
| **4** | **Conv3D** | **Train\_Accuracy =80.06**  **Val\_Accuracy = 58** | **Used 7,5,3 as kernel sizes. Model did not perform well and started to overfit** |
| **5** | **Conv3D** | **Train\_Accuracy =94.72**  **Val\_Accuracy =87** | **3 Conv3d Layers**  **Kernel ( 3,3,3 )**  **No. of kernels per layer increased**  **Kernels per layer = 32,64,128,256**  **No improvement in validation accuracy.** |
| **6** | **Conv3D** | **Train\_Accuracy = 100**  **Val\_Accuracy = 81** | **5 Conv3d Layers**  **Kernel (3,3,3) and (2,2,2)**  **Kernels per layer =64,128,256,256,256 Model overfitted again.** |
| **7** | **Conv3D** | **Train\_Accuracy =78.24**  **Val\_Accuracy = 34.02** | **Did data augmentation and got poor results and overfitting of the model** |
| **8** | **Conv3D & GRU** | **Train\_Accuracy = 90.25**  **Val\_Accuracy = 79.37** | **4 Conv3D Layers and one GRU ( RNN )**  **The accuracy was decent but not great as one would expect for GRU on temporal sequence.** |
| **9** | **Transfer Learning Mobilenet ( Imagenet weights )** | **Train\_Accuracy = 87.33**  **Val\_Accuracy = 77** | **Decent results obtained without training a single parameter on a pre trained model** |
| **10** | **CONV3D and LSTM** | **Train\_Accuracy =89.73**  **Val\_Accuracy =80.10** | **No significant improvement when used LSTM. Model still witnesses overfitting.** |
|  |  |  |  |
| **Final Model ( Model 3 )** | **Conv3D** | **Train\_Accuracy = 88.42**  **Val\_Accuracy = 87** | **Very Good accuracy on both Training and Validation data sets.**  **Very simple model with less trainable parameters compared to other models** |