|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** | **Parameters** |
| **1** | **Conv3D** | **Training Accuracy : 0.93**  **Validation Accuracy : 0.18** | **Model is Overfitting**  **Add some Dropout Layers** | 1,117,061 |
| **2** | **Conv3D** | **Training Accuracy : 0.69**  **Validation Accuracy : 0.23**  ***(Best weight Accuracy,Epoch:11/25)*** | **Val\_loss didn’t improve so early stopping stop the training process. Lower the learning rate to 0.0002. Try to reduce the filter size and image resolution** | 3,638,981 |
| **3** | **Conv3D** | **Training Accuracy : 0.65**  **Validation Accuracy : 0.24**  ***(Best weight Accuracy,Epoch:11/25)*** | **Overfitting still present.*Let's try adding more layers*** | 1,762,613 |
| **4** | **Conv3D** | **Training Accuracy : 0.74**  **Validation Accuracy : 0.36** | ***Don’t see much performance improvement. Let's try adding dropouts.*** | 2,556,533 |
| **5** | **Conv3D** | **Training Accuracy : 0.89**  **Validation Accuracy : 0.40** | **Adding dropouts has increased validation accuracy. Let's try to reduce the parameters** | 2,556,533 |
| **6** | **Conv3D** | **Training Accuracy : 0.81**  **Validation Accuracy : 0.21** | **Overfitting is present and validation accuracy low. Let's try to reduce the parameters.** | 696,645 |
| **7** | **Conv3D** | **Training Accuracy : 0.72**  **Validation Accuracy : 0.29** | **Not much difference. Let’s switch to CNN+LSTM.** | 504,709 |
| **8** | **CNN+LSTM** | **Training Accuracy : 0.88**  **Validation Accuracy : 0.30** | **CNN - LSTM model with validation accuracy of 30%** | 1,657,445 |
| **Let's apply some Data Augmentation techniques & check the model performance** | | | | |
| **9** | **Conv3D** | **Training Accuracy : 0.73**  **Validation Accuracy : 0.76** | **(3, 3, 3) Filter & 160 x 160 image resolution** | 3,638,981 |
| **10** | **Conv3D** | **Training Accuracy : 0.66**  **Validation Accuracy : 0.36** | **(2, 2, 2) Filter & 120 x 120 image resolution. Increase epoch count to 25.** | **1,762,613** |
| **11** | **Conv3D** | **Training Accuracy : 0.73**  **Validation Accuracy : 0.80** | **Adding more layers.** | 2,556,533 |
| **12** | **Conv3D** | **Training Accuracy : 0.64**  **Validation Accuracy : 0.28** | **Very low performance. Let’s reduce the network parameters.** | 2,556,533 |
| **13** | **Conv3D** | **Training Accuracy : 0.75**  **Validation Accuracy : 0.77** | **After reducing network parameters, model’s performance is quite good.** | 696,645 |
| **14** | **Conv3D** | **Training Accuracy : 0.76**  **Validation Accuracy : 0.75** | **Reducing network parameters again.** | 504,709 |
| **15** | **CNN LSTM with GRU** | **Training Accuracy : 0.92**  **Validation Accuracy : 0.78** | **Overfitting is present.** | 2,573,925 |
| **16** | **Transfer Learning** | **Training Accuracy : 0.98**  **Validation Accuracy : 0.74** | **Used MobileNet Transfer. Improvement observed.** | 3,840,453 |
| **17** | **Transfer Learning with GRU and training all weights** | **Training Accuracy : 0.99**  **Validation Accuracy : 0.93** | **Included MobileNet weights. Best model** | 3,693,253 |