Convolution with augmentation is producing good results with less parameters. So model 13 can be considered

|  |  |  |  |
| --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Training Accuracy : 0.95**  **Validation Accuracy: 0.19**  **Parameters: 1,736,389** | **Data is overfitting** |
| **2** | **Conv3D** | **Training Accuracy : 0.78**  **Validation Accuracy: 0.23**  **Parameters: 3,638,981** | **Data is overfitting** |
| **3** | **Conv3D** | **Training Accuracy : 0.7**  **Validation Accuracy: 0.2**  **Parameters: 1,762,613** | **Data is overfitting** |
| **4** | **Conv3D** | **Training Accuracy : 0.74**  **Validation Accuracy: 0.36**  **Parameters: 2,556,533** | **Data is overfitting** |
| **5** | **Conv3D** | **Training Accuracy : 0.83**  **Validation Accuracy: 0.29**  **Parameters: 2,556,533** | **Data is overfitting** |
| **6** | **Conv3D** | **Training Accuracy : 0.77**  **Validation Accuracy: 0.36**  **Parameters: 696,645** | **Data is overfitting** |
| **7** | **Conv3D** | **Training Accuracy : 0.77**  **Validation Accuracy: 0.28**  **Parameters: 504,709** | **Data is overfitting** |
| **8** | **Conv3D** | **Training Accuracy : 0.86**  **Validation Accuracy: 0.28**  **Parameters: 1,657,445** | **Data is overfitting** |
| **9** | **Conv3D + Augmentation** | **Training Accuracy : 0.76**  **Validation Accuracy: 0.74**  **Parameters: 3,638,981** | **Good performance but parameters are high in number** |
| **10** | **Conv3D + Augmentation** | **Training Accuracy : 0.69**  **Validation Accuracy: 0.26**  **Parameters: 1,762,613** | **Data is overfitting** |
| **11** | **Conv3D + Augmentation** | **Training Accuracy : 0.75**  **Validation Accuracy: 0.77**  **Parameters: 2,556,533** | **Data is underfitting** |
| **12** | **Conv3D + Augmentation** | **Training Accuracy : 0.67**  **Validation Accuracy: 0.35**  **Parameters: 2,556,533** | **Data is overfitting** |
| **13** | **Conv3D + Augmentation** | **Training Accuracy : 0.78**  **Validation Accuracy:0.76**  **Parameters: 696,645** | **Best performance considering less numbers of paramters** |
| **14** | **Conv3D + Augmentation** | **Training Accuracy : 0.75**  **Validation Accuracy: 0.76**  **Parameters: 504,709** | **Slightly underfitting. Though parameters are less, can’t be considered.** |
| **15** | **Cnn+LSTM+GRU** | **Training Accuracy : 0.92**  **Validation Accuracy: 0.77**  **Parameters: 2,573,925** | **Good performance but parameters are high in number** |
| **16** | **Transfer learning** | **Training Accuracy : 0.97**  **Validation Accuracy: 0.79**  **Parameters: 3,840,453** | **Data is overfitting** |
| **17** | **Transfer learning + GRU** | **Training Accuracy : 0.99**  **Validation Accuracy: 0.97**  **Parameters: 3,693,253** | **Best results but the number of parameters are very high.** |