|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MODEL** | **EXPERIMENT** | **RESULT** | **DECISION + EXPLANATION** | **PARAMETERS** |
| **Conv3D** | **1** | **Training Accuracy : 77.83**  **Validation Accuracy : 31** | **Training Accuracy is more than validation Accuracy, hence Over fitting.** | **25,54,549** |
| **2** | **Training Accuracy : 86.43**  **Validation Accuracy : 57.00** | **Better than Previous model, but still Over fitting.** | **30,737,381** |
| **3** | **Training Accuracy : 80.69**  **Validation Accuracy : 26** | **Overfitting has Increased drastically, *Let's trying adding more layers.*** | **1,072,149** |
| **4** | **Training Accuracy : 72.70**  **Validation Accuracy : 54** | ***Not Much of Improvement with this model. Let's try adding dropouts.*** | **25,54,549** |
| **5** | **Training Accuracy : 61.69**  **Validation Accuracy : 24** | **Overfitting Increased.Let's try to reduce the parameters** | **25,54,549** |
| **6** | **Training Accuracy : 97.89 Validation Accuracy : 86.0** | **Got best training and validation Accuracies, hence finalizing this model.** | **907,733** |
| **Conv2D+LSTM** | **Let's try Some models Using Conv2D+LSTM Network** | | | |
| **7** | **Training Accuracy : 88.99 Validation Accuracy : 30** | **Training Accuracy is more than validation Accuracy, hence Over fitting.** | **502,181** |
| **8** | **Training Accuracy : 92.31 Validation Accuracy : 43** | **Better than Previous model, but still Over fitting.** | **502,181** |
| **9** | **Training Accuracy : 66.82**  **Validation Accuracy : 16** | **When we try to reduce the Params, the accuracy is decreasing by a huge margin.** | **297,957** |
| **10** | **Training Accuracy : 93.21**  **Validation Accuracy : 78** | **As per observation, increasing the params have increased the model performance but slightly Overfitting.** | **12,82,373** |
| **11** | **Training Accuracy : 100 Validation Accuracy : 89** | **Not much improvement.** | **994,117** |
| **CNN LSTM with GRU** | **12** | **Training Accuracy : 99.85**  **Validation Accuracy : 91** | **Though the model is very good, the params are very high, hence avoiding this model keeping the computational cost into consideration.** | **36,69,317** |

**As per our Observation, the final Model suitable for Gesture recognition is Model no: 6, with categorical training accuracy : 97.89, Validation accuracy : 86.00, Training Loss: 0.1054, Validation Loss: 0.4075.**

**Params of the model 6:**

**Image\_size= 120\*120**

**Frames= 16**

**Batch Size= 20**

**Epochs= 20**

**Number of Classes= 5**

**Filter\_size= (2,2,2)**