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| --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **Base Model** | **Conv3D** | **Training Accuracy: 1.0**  **Validation Accuracy: 0.64**  **Validation Loss: 1.42**  **Parameters: 1459333** | **Resize the images correctly, overfitting. Used three convolution layers with filter size = 3x3x3 since we feel the images need not be learnt very minutely and so a lesser number was not required.**  **MaxPooling and Dropouts were used to take care of overfitting.**  **Dense layers are added for better learning.**  **Hyperparameters:**  **Batch size = 25**  **Epoch = 20**  **Sample size = 12 x 100 x 100x 3** |
| **1** | **Conv3D** | **Training Accuracy: 0.87**  **Validation Accuracy: 0.69**  **Validation Loss: 0.81**  **Parameters: 1459333** | **Reduce number of images/frames for a datapoint – good model.**  **Reduced number of frames to 8**  **Helped resolve overfitting and validation loss has improved too. But the model can be fine tuned more** |
| **2** | **Conv3D** | **Training Accuracy: 0.19**  **Validation Accuracy: 0.19**  **Validation Loss: 1.6**  **Parameters: 1459333** | **Very bad model, hasn’t learnt anything.**  **Batch size was reduced to 20 – so complexity has increased.**  **Reducing batch size did not help.** |
| **3** | **Conv3D** | **Training Accuracy: 0.96**  **Validation Accuracy: 0.75**  **Validation Loss: 0.87**  **Parameters: 1098885** | **Best model so far**  **Validation Loss: 0.87**  **Reduced image size to 80 x 80**  **Batch size = 30**  **Epoch = 20** |
| **4** | **Conv3D** | **Training Accuracy: 0.89**  **Validation Accuracy: 0.73**  **Validation Loss: 0.82**  **Parameters: 681093** | **Best model so far in terms of balancing accuracy and validation loss**  **Reduced image size to 60 x 60**  **Epoch = 15**  **Also, parameters are less compared to other models**  **This model also runs on lesser epochs making it more performant and resource efficient.** |
| **5** | **Conv3D** | **Training Accuracy: 0.96**  **Validation Accuracy: 0.62**  **Validation Loss: 1.21**  **Parameters: 272069** | **Architecture change – add dropouts, batch normalization and dense layers**  **Least number of parameter – so quick performance.** |
| **Final Model = Experiment #4** | **Conv3D** | **Accuracy: 0.73** | **Best model so far in terms of balancing accuracy and validation loss**  **Reduced image size to 60 x 60**  **Epoch = 15**  **Validation Loss: 0.82**  **Also, parameters are less compared to other models**  **This model also runs on lesser epochs making it more performant and resource efficient.** |

**Note**: GestureRecognition\_Jenifer\_Chethana.html has other models that we have tried.