***Gesture Recognition****: Nishant Dhruv & Vishal Singh*

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| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| 1 | Conv3D  Epochs = 20  Batch Size=300  Image Size= (80,80,3)  Number of Images from a Sequence =16 | Not able to train the model due to error | The batch size value is taken high, reducing batch size value. |
| 2 | Conv3D  Epochs = 20  Batch Size=64  Image Size= (80,80,3)  Number of Images from a Sequence =16 | Training Accuracy=0.1790  Validation Accuracy=0.2870 | Training and validation accuracy is not as expected, further experimenting with changing model architecture and increasing number of epochs. |
| 3 | Conv3D  Epochs = 35  Batch Size=64  Image Size= (80,80,3)  Number of Images from a Sequence =16 | Training Accuracy=0.19  Validation Accuracy=0.31 | Training and validation accuracy is not as expected, further experimenting with changing model architecture as conv2D+GRU. |
| 4 | Conv2D (Time distributed) + GRU  Epochs=30,  Batch Size=30,  Image Size=(50,50,3),  Number of Images from a Sequence =15  Number of Parameters: 3,761,701 | Training Accuracy=0.98  Validation Accuracy=0.75 | There is a significant difference between training and validation data accuracy. It can be a case of overfitting. The number of epochs can be increased to check if the accuracy still remains the same on validation data. |
| 5 | Conv2D (Time distributed) + GRU  Epochs=50,  Batch Size=30,  Image Size=(50,50,3),  Number of Images from a Sequence =10  Number of Parameters: 3,761,701 | Training Accuracy=0.98  Validation Accuracy=0.79 | Increasing the number of epochs by 20 increased validation data accuracy by 4%, further increasing the number of epochs by 20 and increasing batch size to 40 to check the effect on validation accuracy. |
| 6 | Conv2D (Time distributed) + GRU  Epochs=70,  Batch Size=40  Image Size=(50,50,3),  Number of Images from a Sequence =10  Number of Parameters: 3,761,701 | Not able to train the model due to error | Increasing the batch size to 40 gave an error due to the increased amount of batch size. The machine was not able to handle the processing. |
| 7 | Conv2D (Time distributed) + GRU  Epochs=70,  Batch Size=32  Image Size=(50,50,3),  Number of Images from a Sequence =10  Number of Parameters: 3,761,701 | Training Accuracy=0.93  Validation Accuracy=0.84 | Increasing the number of epochs to 70 and batch size to 32 increased validation data accuracy by 6% as compared to model (2) and 9% compared to model (1). Also, the model generalizability has improved as it is performing well on validation data. |
| 8 | Conv2D (Time distributed) + GRU  Epochs=50,  Batch Size=32  Image Size=(50,50,3),  Number of Images from a Sequence =15  Number of Parameters: 3,761,701 | Training Accuracy=0.85    Validation Accuracy=0.84 | Experimenting with epochs=50 and increased batch size=32 & (number of images)/video=15.  Increased batch size and the number of images/video help in improving accuracy by 3.5% even though epoch is reduced by 20. It saved time in model training. |
| **Final Model** | Conv2D (Time distributed) + GRU  Epochs=50,  Batch Size=32  Image Size=(50,50,3),  Number of Images from a Sequence =15  Number of Parameters: 3,761,701 | Training Accuracy=0.85    Validation Accuracy=0.84 | Parameters are less as compared to the rest of the models with high validation accuracy. Model performs almost similarly on both seen and unseen data. |