Below are the details of all the model experimented by us to get a good model for Gesture Recognition.

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| **Experiment Number** |  | **Model** | **Result** | **Decision + Explanation** |
| **1** |  | **Conv3D** | Training accuracy : 97.28  Validation acc: 68.75 | We have tried the model with epoch=30, batch size = 32, 3 Conv3d layers(32,64,64) with ‘Adam’ optimizer.  Activation Function used: LeakyReLU  From the result of the model it is clear that the model is overfitting so we did not consider this model |
| **2** |  | **Conv3D** | Throws error:  Model not trainable as a lot of parameters | **Increased the conv3D layers**  We have tried the model with epoch=30, batch size = 32, 6 Conv3d layers(32,32,64,64,128,128) with ‘Adam’ optimizer.  Activation Function used: LeakyReLU. |
| **3** |  | **Conv3D** | Overfit Model  Training accuracy : 98.88  Validation acc: 56.75 | **Increased the epoch size from 30 to 50.**  We have tried the model with epoch=50, batch size = 32, 3 Conv3d layers(32,64,64) with ‘Adam’ optimizer.  Activation Function used: LeakyReLU |
| **4** |  | **Conv3D** | Overfit Model:  Training accuracy : 88.88  Validation acc: 75.00 | **Changed the Optimizer from ‘Adam’ to ‘SGD’**  We have tried the model with epoch=30, batch size = 64, 3 Conv3d layers(32,64,64) with ‘SGD’ optimizer.  Activation Function used: LeakyReLU |
| **5.** |  | **Conv3D** | **Highly Overfitted Model**  Training accuracy : 100  Validation acc: 37.50  ( The model completely learned the data while training thus gave poor accuracy on validation data set) | **Increased epoch = 60**  We have tried the model with epoch=60, batch size = 64, 3 Conv3d layers(32,64,64) with ‘SGD’ optimizer. |
| **6** |  | **Conv3D** | **Highly Overfitted Model**  Training accuracy : 100  Validation acc: 50 | **Changed the learnig rate to 0.001**  We have tried the model with epoch=60, batch size = 64, 3 Conv3d layers(32,64,64) with ‘SGD’ optimizer. |
| **7** |  | **Conv3D** | **Overfitted Model**  Training accuracy : 87.4  Validation acc: 37.5 | **Changed the optimizer to ‘RMSProp’**  We have tried the model with epoch=30, batch size = 64, 3 Conv3d layers(32,64,64) with ‘RMSProp’ optimizer. |
| **8** |  | **Conv3D** | Inspite of low number of trainable parameter we still found the model overfitted.  Training accuracy : 85.7  Validation acc: 50.0 | **Decrease the number of parameter by decreasing the feature map size.**  We have tried the model with epoch=30, batch size = 32, 3 Conv3d layers(8,16,32) with ‘RMSProp’ optimizer and activation function as ‘Relu’ and 3 dense layer.  Also applied Earlystopping |
| **9** |  | **Conv3D** | Due to early stopping parameter the model stops at 11th epoch and have very less  Training accuracy : 16.7 and  Validation acc: 12.4 | We have tried the model with epoch=50, batch size = 64, 3 Conv3d layers(8,16,32) with ‘RMSProp’ optimizer  **Not giving desired result.** |
| **Final Model** |  | **Conv3D** | Training accuracy : 98.3 and  Validation acc: 87.5 | After trying all the above models we have tried a model with epoch = 30, batch size = 32 , learning rate = 0.01, optimizer = ‘SGD’ and 3 Conv3D layers(32,64,64) along with 2 dense layer with activation function = ‘LeakyRelu’  **The result of this model is fairly descent compared to all the above models.**  **Hence this is the final model for the Gesture recognition problem** |
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The h5 file is too large so created google drive link :

<https://drive.google.com/file/d/1wA3ypBbYKWtqlRIQT-dQy_wPg71p_Pv1/view?usp=sharing>