

# Case Study: Gesture Recognition Model Building

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## Experiments:

Experiment	Model	Parameters	Result	Decision + Explanation
1	Conv3D(7 layered)	Frame/seq=30 Batch size=40 Epoch=15 Image Resolution=100*100 Data Augment = False	<b>train_accuracy:-</b> 0.9544 <b>val_accuracy:</b> - 0.8083 , <b>Trainable params:</b> -387,749  Model overfitts and time taken is more	Reduce no. of Frame/seq, Batch size & Data Augment = True
2	Conv3D(7 layered)	Frame/seq=20 Batch size=30 Epoch=15 Image Resolution=100*100 Data Augment = True	<b>train_accuracy:-</b> 0.8849 <b>val_accuracy:</b> - 0.6062 , <b>Trainable params:</b> -387,749  Validation Accuracy is less.	Try with CNN+LSTM model
3	CNN+LSTM	Frame/seq=30 Batch size=30 Epoch=10 Image Resolution=124*124 Data Augment = True	<b>train_accuracy:</b> 0.7404 <b>val_accuracy:</b> 0.5091  Model overfitts.	Reduce no. of Frame/seq, No. of epoch
4	CNN+LSTM	Frame/seq=20 Batch size=30 Epoch=4 Image Resolution=100*100 Data Augment = True	<b>train_accuracy:</b> 0.5305 <b>val_accuracy:</b> 0.5727  Validation accuracy is very less.	Try with Mobilenet+Gru
5	MobileNet+GRU	Frame/seq=25 Batch size=30 Epoch=4 Image Resolution=100*100 Data Augment = True	ResourceExhaustedError	Reduce no. of Frame/seq
6	MobileNet+GRU	Frame/seq=20 Batch size=30 Epoch=5 Image Resolution=100*100 Data Augment = True	<b>train_accuracy:-</b> 0.9448 <b>val_accuracy:</b> - 0.8364 <b>Trainable params:</b> 3,422,597  Validation Accuracy is less	Increase No. of Epoch
7	MobileNet+GRU	Frame/seq=20 Batch size=30 Epoch=10 Image Resolution=100*100 Data Augment = True	<b>train_accuracy:-</b> 0.9599 <b>val_accuracy:</b> - 0.9091 <b>Trainable params:</b> 3,422,597  Validation Accuracy is Good	Best model with good train/validation accuracy and no model overfitting.