Gesture Recognition

Problem statement:

To develop a cool feature in the smart-TV that can recognize five different gestures performed by the user which will help users control the TV without using a remote.

Below are the details of the experiments conducted on the data….

Experiment No.	Model	Result	Decision + Explanation
1	Conv3D	Train Accuracy: 0.21 Validation Accuracy: 0.20	Batch size = 128 Ablation = 20 Epoch = 20 Model did not learn anything, no loss reduction observed.
2	Conv3D	Train Accuracy: 0.23 Validation Accuracy: 0.20	Batch size = 30 Model is not improved, will add batch normalization layer after CNN and dense layers
3	Conv3D	Train Accuracy: 0.90 Validation Accuracy: 0.71	Ablation = None Epoch = 50 Model is over fitting, will add few dropouts
4	Conv3D	Train Accuracy: 0.97 Validation Accuracy: 0.77	Dropout=0.2 Model is still over fitting
5	Conv3D	Train Accuracy: 0.95 Validation Accuracy: 0.55	Dropout=0.5 Model is still over fitting, will try GRU
6	Time Distributed + GRU	Train Accuracy: 0.87 Validation Accuracy: 0.62	Huge gap between train and validation accuracy, will replace GRU with a plain Dense Layer Network and add global average pooling Total params: 99,845
7	Time Distributed + Dense	Train Accuracy: 0.86 Validation Accuracy: 0.85	Training and validation accuracy is close, seems a good model Total params: 129,477
8	Time Distributed + ConvLSTM 2D	Train Accuracy: Validation Accuracy:	Total params: 13,781
Final Model	Pending	Train Accuracy: Validation Accuracy:	