**Problem Statement:**

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

The following table consists of the experiments done to build a model to predict the gestures from the given data set.

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| --- | --- | --- | --- |
| **Experiment**  **Number** | **Model** | **Result** | **Decision + Explanation** |
|  | Conv3D | Result at epoch: 46, Loss: 0.08752, Categorical Accuracy: 0.97024, Val\_Loss: 0.57697, Val\_Categorical\_accuracy: 0.82812 | The model is wonderful and the training and  validation scores are good. The model has  710,533 trainable parameters. As plot shows it has huge oscillations in validation accuracy. |
|  | TimeDistributed Conv2D + Dense | Result at epoch:27, Loss: 0.36284, Categorical Accuracy: 0.85119, Val\_Loss: 0.47315, Val\_Categorical\_accuracy: 0.85156 | This is not best but good model with comparable training and  validation accuracies with number of params  128,517. |
|  | TimeDistributed + ConvLSTM2D | Result at epoch:18, Loss: 0.55363, Categorical Accuracy: 0.76935, Val\_Loss: 0.59938, Val\_Categorical\_accuracy: 0.74219 | This is good model with comparable training and  validation accuracies with large number of params  336,005. As plot shows it has huge oscillations in validation accuracy. |
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| **Final Model** | TimeDistributed Conv2D + Dense | Result at epoch:27, Loss: 0.36284, Categorical Accuracy: 0.85119, Val\_Loss: 0.47315, Val\_Categorical\_accuracy: 0.85156 | This is not best but good model with comparable training and  validation accuracies with number of params  128,517. |