Write-up for Gesture recognition experiment.

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| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **0** | **Conv3D** | **Generator threw an error** | **The generator function threw an error due to incorrect setup of img\_idx.**  **Fixed it by having an expression which produced as list.** |
| **1** | **Conv3D** | **Model not trainable due to lot of parameters** | **There were 77 million + parameters. The model requires to be refined.** |
| **2** | **Conv3D** | Categorical accuracy: 0.5505  **Val accuracy:** 0.5600 | **Introduced another Conv3D layer which reduced the parameters to 11million+.**  **Tried with 10 epochs.**  **Batch size 64.** |
| **3** | **Conv3D** | Categorical accuracy: 0.7285  **Val accuracy:** 0.5000 | **The model is same as above. But this time increased the number of epochs to 30 to train more.**  **Hence 11million+ parameters and batch size is 64.** |
| **4** | **Conv3D** | Categorical accuracy: 0.2021  **Val accuracy:** 0.2400 | **Introduced another layer of Conv3D. Parameters got reduced to 4million+.**  **Tried with batch size 32 and 25 epochs.**  **But the accuracy went down to ~20%. Which means all gestures are classified as same class.** |
| **5** | **Conv3D** | Categorical accuracy: 0.9759  **Val accuracy:** 0.8700 | **The model is similar. But uses L2 regularization.**  **Batch size is 30 and ran 30 epochs.**  **This is the best model.** |
| **6** | **Conv3D** | Categorical accuracy: 0.2193  **Val accuracy:** 0.2500 | **Tried an alternative model.**  **Reduced the image size to 60x60.**  **Kept the batch size as 64 and epochs as 10.**  **Model did not perform as expected.** |
| **7** | **EfficientNetB0** | Categorical accuracy: 0.8556  **Val accuracy:** 0.2500 | **Transfer Learning.**   * **Model was clearly overfitting.** |
| **8** | **MobileNet** | Categorical accuracy: 1.00  **Val accuracy:** 0.88 | **Transfer Learning using MobileNet.**  **Batch size 32 and 30 epochs.**  **Got a Val accuracy of 88%.** |
| **9** | **CNN+LSTM** | Categorical accuracy: 0.9020  **Val accuracy:** 0.2100  **Overfitting** | **Try ConvLSTM.**  **The model is overfitting when tried with batch size as 64 and 25 epochs.** |
| **10** | **CNN+LSTM** | Categorical accuracy: 0.6787  **Val accuracy:** 0.1900  **Overfitting** | **Try ConvLSTM with additional drop outs.**  **The model is overfitting when run for 6 epochs.** |
| **11** | **CNN+GRU** | Categorical accuracy 1.00  **Val accuracy:** 0.8200 | **This model gives a good accuracy, but still lower than the Conv3D model.** |
| **12** | **CNN+GRU + Augmentation** | Categorical accuracy: 1.000  **Val accuracy:** 0.8400 | **Introduced data augmentation.**  **Even with data augmentation, the ConvGRU model is not beating the Conv3D model.**  **Tried with batch size as 32 and 30 epochs.** |