|  |  |  |  |
| --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Throws Generator error** | **Reason for error:**  Model cannot have uneven resolution images. Input images are of 2 different resolutions.  **Suggestion:**  Resize images to a single resolution. |
| **2** | **Conv3D** | **Model not trainable as a lot of parameters** | **Action Taken:**   1. Added dropouts 2. Reduced the number of layers.   **Further Action Taken:**   1. Reduced the size of the image 2. Crop and Resize images. 3. Instead of using all the 30 frames reduced to 8 frames per video. |
| **3** | **Conv3D** | **Accuracy: 0.69** | **Action Taken:**   1. Stride set to 1 in Conv3D for max feature extraction. 2. Stride set to 2 in MaxPooling3D for computational efficiency.   **Suggestion:**  Add more input data/frames to the model. |
| **4** | **Conv3D** | **Accuracy: 0.60** | **Action Taken:**   1. From 8 frames increased to 18 frames per video. 2. Model is the same as before with dropouts, Learning rate, optimizer, activation function   **Suggestion:**   1. Increase epoch to min 30 to achieve desirable training accuracy >90%. 2. Use ‘time distributed’ approach to sequence/differentiate left & right swings. |
| **Recommended further exploration with GPU** |  |  | **Data Augmentation:**   * Rotate images by 25 degree. * Switch to grayscale.   ReLU for potential faster training.  Conv2D + GRU/LSTM with appropriate hyperparameters  Use Transfer learning/Pretrained models to build a base model. |