Training Experiments

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| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Throws Generator error** | **Crop the images correctly, try to overfit on less amount of data(Ablation experiment) and see the maximum batch size which could be used without Out of memory error** |
| **2** | **Conv3D** | **validation Accuracy: 70.5** | **with two 3D convolution layers. Too many parameters in fully connected layer and model is overfitting.** |
| **3** | **Conv3D** | **validation Accuracy: 70** | **with three 3D convolution layers model is overfitting.** |
| **4** | **Conv3D** | **Accuracy : 78** | **with four 3D convolution. Validation and training accuracies are similar and no over overfitting behaviour.** |
| **5** | **Conv3D** | **Accuracy : 75** | **with four 3D convolution**  **increased image size to 160\*160 to see whether 120\*120 caused any data loss. use all 30 frames for training. Validation and training accuracies are similar and no over overfitting behaviour.** |
| **6** | **Conv2D + RNN GRU model** | **validation Accuracy: 81** | **Image size 120 x 120 Brought back batch size to 20. epoch to 20** |
| **7** | **Conv2D + RNN GRU model** | **validation Accuracy: 95** | **Transfer learning usingMobile Net architecture with ImageNet weights. Mobile net weights are tainable** |
| **8** | **Conv2D + RNN GRU model** | **Best validation Accuracy: 96** | **Mobile net weights are not trainable** |

filtersize=(2,2,2) was given lower accuracy values so filtersize=(3,3,3) was used for all Conv3D models. Data augmentation is used for training dataset since it increased the validation accuracy across all models slightly

<https://blog.paperspace.com/data-augmentation-for-object-detection-rotation-and-shearing/>