Write Up

Here are the experiments that were tried, a total of 6 model execution were performed to come with optimal model that consists of reasonable parameters with highest train and validation accuracy.

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| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Accuracy Training: 56%**  **Accuracy Validation: 57%** | **Batch size was 20, used Conv3D 16, 32, 64, 128, 256, Activation function was Relu, Dense 1000, 500, 5  Optimizer used was Adam with learning rate 0.001, loss used was categorical cross entropy** |
| **2** | **ConvLSTM** | **Accuracy Training: 21%**  **Accuracy Validation: 31%** | **Frame 30, image width and height 120, 120**  **Epoch 30**  **Batch size was 32,**  **Conv3D 16, 32, 64, 128, 256 Activation function was Leaky Relu, Dense 1000, 500, 5  Optimizer: Adam**  **with learning rate 0.001**  **Loss: Categorical cross entropy** |
| **3** | **Conv3D** | **Accuracy Training: 63%**  **Accuracy Validation: 25%** | **Batch size was 64, used Conv3D 8, 16, 32, 64, 128 Activation function was Relu, Dense 1000, 500, 5  Optimizer used was Adam with learning rate 0.001, loss used was categorical cross entropy** |
| **4** | **Conv3D** | **Accuracy Training: 49%**  **Accuracy Validation: 25%** | **Frame 30, image width and height 60,60, 5**  **Epoch 30**  **Batch size was 64, used Conv3D 16, 32, 64, 128, 256 Activation function was Relu, Dense 1000, 500, 5  Optimizer used was SGD with learning rate 0.001, loss used was categorical cross entropy** |
| **5** | **Conv3D** | **Accuracy Training: 57%**  **Accuracy Validation: 66%** | **Frame 30, image width and height 120, 120**  **Epoch 20**  **Batch size was 10,**  **Conv3D 8, 16, 32, 64 Activation function was Relu, Dense 256, 128, 5  Optimizer: Adam**  **with learning rate 0.001**  **Loss: Categorical cross entropy** |
| **6** |  | **Accuracy Training: 93%**  **Accuracy Validation: 87%** | **Frame 30, image width and height 120, 120**  **Epoch 30**  **Batch size was 32,**  **Conv3D 16, 32, 64, 128, 256 Activation function was Leaky Relu, Dense 1000, 500, 5  Optimizer: Adam**  **with learning rate 0.001**  **Loss: Categorical cross entropy** |
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