Write up experiment SankrityaVH\_MallibabuB

Wherever we mentioned just ‘Accuracy’, it means test data accuracy. Wherever needed, we clarified if it is test or training

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| **Experiment Number** | **Model** | **Hyperparameter** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Batchsize = 35**  **Epoch= 15**  **Dimension= 100x100**  **LR = 0.01**  **Drop out = Yes**  **Trainable Parameters = 689,397** | **Error** | **Error** |
| **2** | **Conv3D** | **Batchsize = 35**  **Epoch= 15**  **Dimension= 160x160**  **LR = 0.001**  **Drop out = Yes**  **Trainable Parameters =** **1,737,973** | **Overfitting issue with less validation loss. Accuracy is 0.25** | **Try with increased batch size** |
| **3** | **Conv3D** | **Batchsize = 60**  **Epoch= 15**  **Dimension= 160x160**  **LR = 0.001**  **Drop out = Yes**  **Trainable Parameters =** **1,737,973** | **Out of memory error** | **Reducing batch size and image dimension and try next** |
| **4** | **Conv3D** | **Batchsize = 15**  **Epoch= 15**  **Dimension= 120x120**  **LR = 0.01**  **Drop out = Yes**  **Trainable Parameters =** **11,115,053** | **Validation loss goes down with each epoch. Accuracy does not improve** | **No conclusive evidence of Conv3D working out as accuracy is at 0.13 even after 15th Epoch** |
| **5** | **ConvLSTM** | **Batchsize = 15**  **Epoch= 15**  **Dimension= 120x120**  **LR = 0.001**  **Drop out = No**  **Trainable Parameters =** **13,589** | **Same as above. Accuracy is 0.28 after final apoch** | **Slight increase of batch size in next trial (not big increase else it will throw memory error again like last time). This time try Conv2D+GRU architecture** |
| **6** | **Conv2d+ GRU** | **Batchsize = 20**  **Epoch= 25**  **Dimension= 120x120**  **LR = 0.001**  **Drop out = Yes**  **Trainable Parameters =** **99,269** | **Validation loss goes down slightly with each epoch with overfitting issues** | **The accuracy declines to around 0.23. For some reason only 23 epochs have run. May be Jarvis issue. We may go back to Conv3D by maintaining same batch size – This is just a trial. Not so confident of the result.** |
| **7** | **Conv3D** | **Batchsize = 20**  **Epoch= 20**  **Dimension= 120x120**  **LR = 0.002**  **Drop out = Yes**  **Trainable Parameters =** **503,973** | **Accuracy is 0.4 which is better than last ones** | **If accuracy >.4 we can take it as good model henceforth.** |
| **8** | **Conv3D** | **Batchsize = 20**  **Epoch= 20**  **Dimension= 160x160**  **LR = 0.002**  **Drop out = Yes**  **Trainable Parameters =** **921,765** | **Validation loss same as above** | **The training accuracy improved to 0.83 but test accuracy is 0.23 only. Indicating overfitting. So I am confident that either by having more Epochs or by using transfer learning of imagenet we will get better accuracy. Not increasing batch size because of potential memory issues. We will go with Transfer learning only** |
| **9** | **Transfer Learning** | **Weights= imagenet**  **Model = GRU**  **Dropout = Yes**  **LR=0.002**  **Dimension = 128x128**  **Trainable parameters = 2,387,813** | **The Validation loss decreasing and matches the training loss. See image below** | **The training accuracy is 0.8 and test accuracy increases with each epoch and max is 0.91. Hence No overfitting(see image below). We can take the model 9 is the best.** |

A screenshot of a graph

AI-generated content may be incorrect.