**Write-Up**

|  |  |  |  |
| --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Result** | **Decision + Explanation** |
| **1** | **Conv3D** | **Throws OOM error** | **Image resolution (120,120)** |
| **2** | **Conv3D** | **Throws OOM error** | **Reduced the no of dense neurons** |
| **3** | **Conv3D** | **Val accuracy: 0.70** | **Reduced the number of layers** |
| **4** | **Conv3D** | **Val accuracy: 0.615** | **Change filter size from (3,3,3) to (2,2,2)** |
| **Apply Augmentation** |  |  |  |
| **5** | **Conv3D** | **Val accuracy: 0.745** | **Apply Augmentation and changed the image resolution to (100,100). Filter size back to (3,3,3).**  **Improved the accuracy.**  This model is available in the notebook. |
| **6** | **Conv3D** | **Val accuracy: 0.475** | **Added dropouts in Conv layer.**  **Adding dropouts reduced the accuracy.** |
| **7** | **Conv3D** | **13 million parameters** | **Removed the dropouts in conv layer and added more layers till feature 128.**  **Too many parameters so skipped running the model.** |
| **8** | **Conv3D** | **Val accuracy: 0.61** | **Removed the 128 feature layer** |
| **9** | **Conv3D** | **Val accuracy : 0.625** | **Filter size changed to (2,2,2)** |
| **10** | **Conv3D** | **Val accuracy: 0.505** | **Added 8 feature layer and 128 dense layer** |
| **Conv2D + GRU** |  |  |  |
| **11** | **Cov2D + GRU** | **Val accuracy: 0.76** | **Features = [16,32,64,128]**  **GRU 64, Dense 64** |
| **12** | **Conv2D + GRU** | **Val accuracy: 0.79** | **Increased feature size of GRU and Dense from 64 to 128.**  This model is available in the notebook. |
| **13** | **Cov2D + GRU** | **Val accuracy: 0.66** | **Reduced the feature size to [8, 16, 32, 64]. No of parameters reduced but accuracy also got reduced. GRU 64, Dense 64** |
| **Final Model with transfer learning** |  |  |  |
| **14** | **Conv2D + GRU**  **With transfer learning** | **Val accuracy: 0.930** | **Used transfer learning and it improved the model greatly.**  **This is the final model with the best validation accuracy.** |
|  |  |  |  |