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| --- | --- | --- | --- | --- |
| **Experiment Number** | **Model** | **Parameters** | **Result** | **Conclusion** |
| **1** | **Resnet\_CNN\_LSTM** | **Image\_Width=x=100**  **Image\_Height=y=100**  **imageindex= every 2nd image alternative (30/2)**  **batch=10**  **epoch=10**  **optimizer=SGD**  **With Decay Callback** | **train: 96 val: 22** | **model is cleary overfitting, will try another model** |
| **2** | **Resnet\_CNN\_GRU** | **Image\_Width=x=100**  **Image\_Height=y=100**  **imageindex= every 2nd image alternative (30/2)**  **batch=10**  **epoch=10**  **optimizer=SGD**  **With Decay Callback** | **train: 97 val: 16** | **The model is still overfitting and it may require to tweek parameters** |
| **3** | **conv2d\_With\_LSTM** | **Image\_Width=x=120**  **Image\_Height=y=120**  **imageindex= every 2nd image alternative (30/2)**  **batch=15**  **epoch=30**  **optimizer=SGD**  **With Decay Callback** | **train: 72 val: 62** | **There is a significant improvement in the model performance after adopting different model architecture and their parameters. Still it can be improved and will also include image cropping in the next model and use a 3d conv model to see if we can improve the model any further.** |
| 4 | **conv2d\_With\_GRU** | **Image\_Width=x=100**  **Image\_Height=y=100**  **imageindex= every 2nd image alternative (30/2)**  **batch=12**  **epoch=18**  **optimizer=adam**  **With Decay Callback**  **Resize and crop image** | **train: 18 val: 25** | **tweeking too many parameters at the same time has resulted in poor model performance.** |
| 5 | **Conv3D** | **Image\_Width=x=100**  **Image\_Height=y=100**  **imageindex= every 2nd image alternative (30/2)**  **batch=15**  **epoch=30**  **optimizer=SGD**  **With Decay Callback**  **Resize and crop image** | **train: 18 val: 25** | **Gradient Exploded with loss as NaN** |
| **6** | **conv2d\_with\_LSTM** | **Image\_Width=x=120**  **Image\_Height=y=120**  **imageindex= every 2nd image alternative (30/2)**  **batch=15**  **epoch=60**  **optimizer=SGD**  **With Decay Callback**  **Resize and crop image** | **train: 75 val: 60** | **Model is stable but still not accurate** |
| **7** | **conv2d\_with\_LSTM** | **Image\_Width=x=120**  **Image\_Height=y=120**  **imageindex= every 2nd image alternative (30/2)**  **batch=20**  **epoch=60**  **optimizer=ADAM**  **With ReduceLROnPlateau**  **Resize and crop image** | **train: 97 val: 86** | **After multiple retries we have found a reasonably accurate model with an accuracy of 86 %. This is the final mode where we have made changes to learning rate pluto and changed few layers of the existing conv2d\_LSTM model** |

All the h5 model files are as per the above experiments are available on this [hyperlink](https://drive.google.com/uc?id=1abxjYDNaG4DnMepdiOiGohfFaLE-4N3C&export=download).