

We have started with the plain vanilla Conv3D model and gradually developed multiple models on Conv3D.

The Next phase of testing was on CNN+LSTM models and CNN+GRU

Model file: Epoch 00015: saving model to
model_init_2021-06-0112_21_59.842966/model-00015-0.05396-0.96728-1.02066-0.79000.h5

| Experiment Number | Model | Result | Decision + Explanation |
|-------------------|-----------------------|--|---|
| 1 | Conv3D | Throws Generator error | Crop the images correctly, try to overfit on less amount of data |
| 2 | Conv3D | Model lot of parameters with very low val accuracy | Added BatchNormalization ,Dropout, dense layer |
| 3 | Conv3D | Categorical Accuracy: 0.21 Val : 0.12 | Very poor accuracy for both categorical and val |
| 4 | Conv3D + augmentation | Categorical Accuracy: 0.67 Val : 0.46 | Added image scaling to 120*120, image augmentation |
| 5 | Conv2D+LSTM | categorical_accuracy: 0.8782 val_categorical_accuracy: 0.3100 | Difference between categorical and validation accuracy is ~55%. This is a clear case of overfitting because we have chosen very less data frames per folder l.e = 5 |

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|-------------|-------------|---|--|
| 6 | Conv2D+LSTM | <p>categorical_accuracy: 0.9394 val_categorical_accuracy: 0.3900</p> <p>Parameters: 1657445</p> | <p>Added Augmentation, image cropping, image resize, added leftover datapoint for generator.</p> <p>Again a case of overfit, because still the sample size is low ~5</p> |
| 7 | Conv2D+LSTM | <p>categorical_accuracy: 0.82</p> <p>val_categorical_accuracy: 0.60</p> | |
| Final Model | Conv2D+GRU | <p>categorical_accuracy: 0.96</p> <p>val_categorical_accuracy: 0.79</p> | <p>Added Augmentation, image cropping, image resize, added leftover datapoint for generator.</p> <p>Data size for per folder increased to ~20 frames per folder.</p> <p>Added GRU layer.</p> |
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