

Created a simple model with small amount of data. Underfitting on training set as enough features are not extracted.

Accuracy => training set – 0.5150 , Validation set-0.4800

I tried using dropouts but its decreasing the efficiency of the model drastically. As the model complexity increases, it is unable to perform well due to gradient problem. This was resolved with batch normalization.

Complicated model with small amount of data is overfitting on training data

Accuracy => training set – 0.7521 , Validation set-0.4286

Applied image cropping with cropping row at 50:210 and column at 10:210 from images of size 224x224. Applying the model after cropping images

Accuracy => training set – 0.4700, Validation set-0.4600

Final Model

Accuracy => training set – 0.6874 , Validation set-0.6742 , Test set – 0.6900

I used resnet101 for feature extraction and fed its output to GRU with 512 units. When training layers is set to false it is heavily underfitting with max training accuracy of around 0.25. But when just last 5 layers were allowed to be trained, it drastically improved performance. It slightly overfitted as well.

ResNet + GRU model Results

Accuracy => training set – 0.5782 , Validation set-0.5455