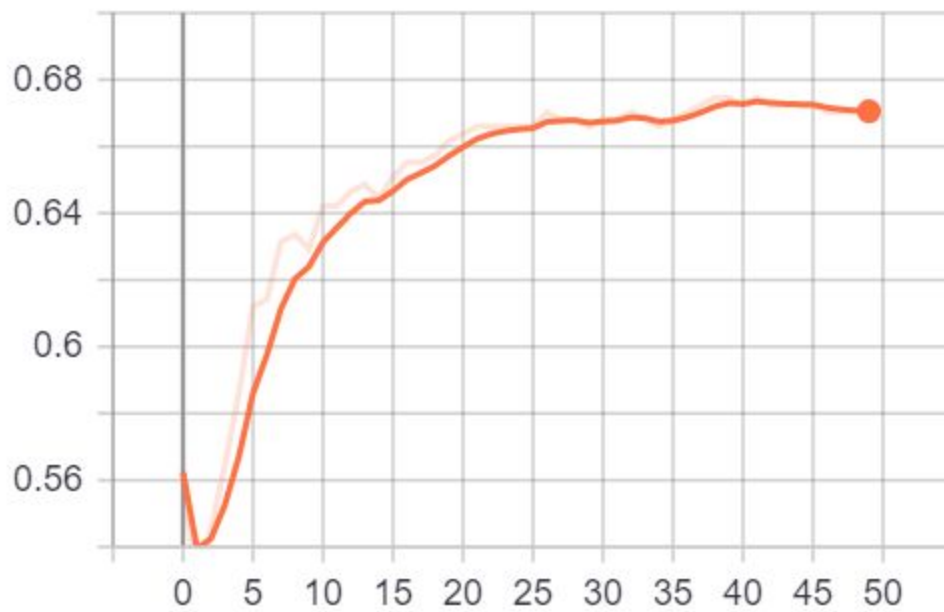2/27
- Tested different parameters for the model (convoluted layers, nodes, and dense layers)
- Found the following accuracy for tests:
    - 73% accuracy and 71% validation accuracy for 1 conv-64 nodes-0 dense
    - 0.7220 accuracy and 0.7035 validation accuracy for 1 conv-64 nodes-1 dense
    - 0.7241 accuracy and 0.6935 validation accuracy for 1-conv-128-nodes-0-dense

2/28
- Finished running VGG16 Model
- Accuracy: 0.6703, Loss: 0.6216, Validation Accuracy: 0.6784, Validation Loss: 0.6110
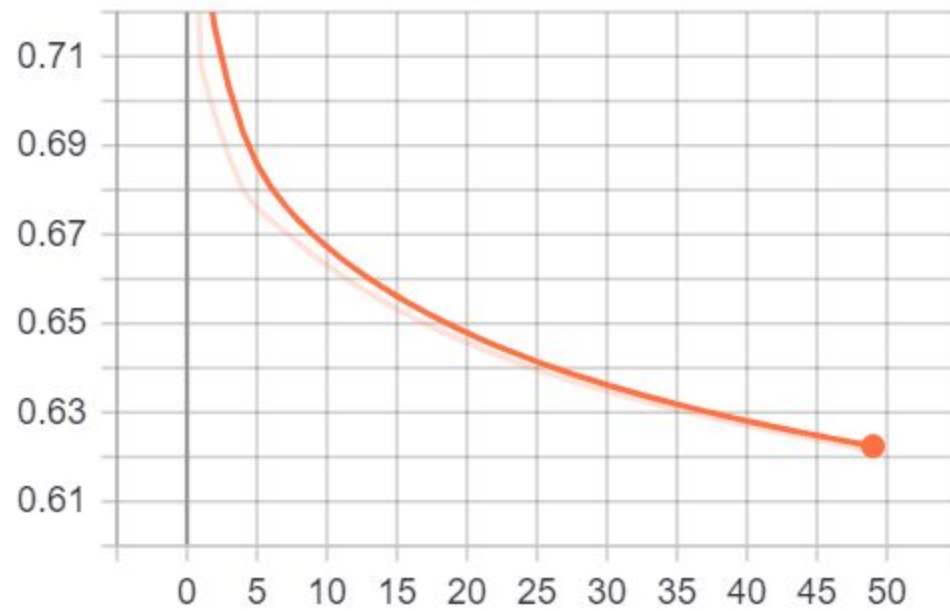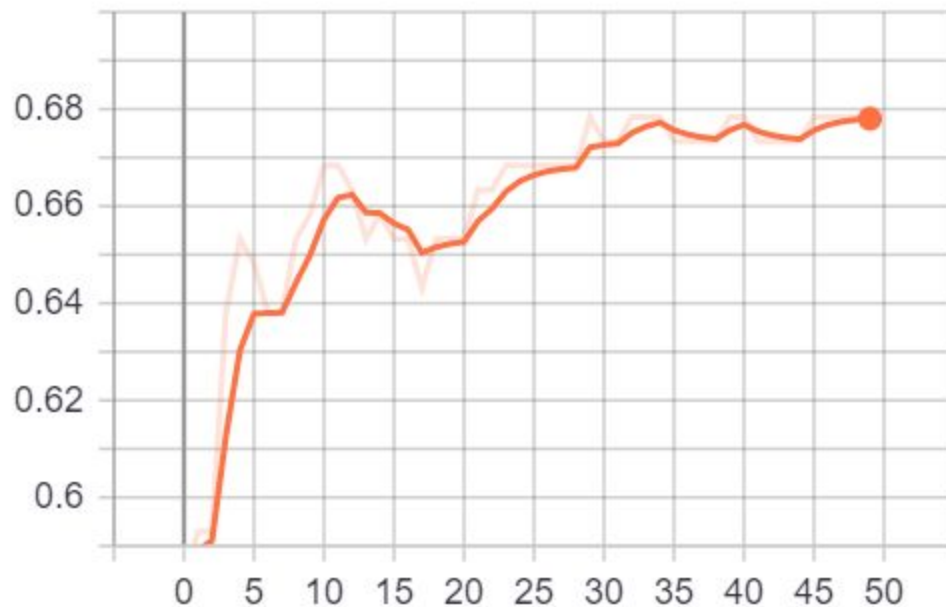
epoch_acc

epoch_acc

-

epoch_loss

epoch_loss

epoch_val_acc

-

Full output of VGG16:

VGG16

WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/tensorflow_core/python/ops/resource_variable_ops.py:1630: calling BaseResourceVariable.__init__ (from tensorflow.python.ops.resource_variable_ops) with constraint is deprecated and will be removed in a future version.

Instructions for updating:

If using Keras pass *_constraint arguments to layers.

Downloading data from https://github.com/fchollet/deep-learning-models/releases/download/v0.1/vgg16_weights_tf_dim_ordering_tf_kernels.h5

553467904/553467096 [==============================] - 34s 0us/step

Train on 464 samples, validate on 199 samples

Epoch 1/50

464/464 [==============================] - 342s 736ms/sample - loss: 0.7849 - acc: 0.5625 - val_loss: 0.6902 - val_acc: 0.5829

Epoch 2/50

464/464 [==============================] - 341s 736ms/sample - loss: 0.7076 - acc: 0.5259 - val_loss: 0.6673 - val_acc: 0.5930
Epoch 3/50
464/464 [==============================] - 340s 733ms/sample - loss: 0.6967 - acc: 0.5453 - val_loss: 0.6624 - val_acc: 0.5930
Epoch 4/50
464/464 [==============================] - 339s 730ms/sample - loss: 0.6875 - acc: 0.5647 - val_loss: 0.6586 - val_acc: 0.6382
Epoch 5/50
464/464 [==============================] - 340s 732ms/sample - loss: 0.6800 - acc: 0.5862 - val_loss: 0.6565 - val_acc: 0.6533
Epoch 6/50
464/464 [==============================] - 338s 729ms/sample - loss: 0.6759 - acc: 0.6121 - val_loss: 0.6542 - val_acc: 0.6482
Epoch 7/50
464/464 [==============================] - 338s 728ms/sample - loss: 0.6732 - acc: 0.6142 - val_loss: 0.6519 - val_acc: 0.6382
Epoch 8/50
464/464 [==============================] - 338s 729ms/sample - loss: 0.6706 - acc: 0.6315 - val_loss: 0.6496 - val_acc: 0.6382
Epoch 9/50
464/464 [==============================] - 338s 729ms/sample - loss: 0.6679 - acc: 0.6336 - val_loss: 0.6474 - val_acc: 0.6533
Epoch 10/50
464/464 [==============================] - 338s 729ms/sample - loss: 0.6654 - acc: 0.6293 - val_loss: 0.6453 - val_acc: 0.6583
Epoch 11/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6631 - acc: 0.6422 - val_loss: 0.6434 - val_acc: 0.6683
Epoch 12/50
464/464 [==============================] - 336s 725ms/sample - loss: 0.6609 - acc: 0.6422 - val_loss: 0.6415 - val_acc: 0.6683
Epoch 13/50
464/464 [==============================] - 338s 728ms/sample - loss: 0.6588 - acc: 0.6466 - val_loss: 0.6398 - val_acc: 0.6633
Epoch 14/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6568 - acc: 0.6487 - val_loss: 0.6382 - val_acc: 0.6533
Epoch 15/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6550 - acc: 0.6444 - val_loss: 0.6366 - val_acc: 0.6583
Epoch 16/50

464/464 [==============================] - 337s 726ms/sample - loss: 0.6532 - acc: 0.6509 - val_loss: 0.6352 - val_acc: 0.6533
Epoch 17/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6516 - acc: 0.6552 - val_loss: 0.6338 - val_acc: 0.6533
Epoch 18/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6500 - acc: 0.6552 - val_loss: 0.6326 - val_acc: 0.6432
Epoch 19/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6485 - acc: 0.6573 - val_loss: 0.6313 - val_acc: 0.6533
Epoch 20/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6470 - acc: 0.6616 - val_loss: 0.6302 - val_acc: 0.6533
Epoch 21/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6457 - acc: 0.6638 - val_loss: 0.6291 - val_acc: 0.6533
Epoch 22/50
464/464 [==============================] - 337s 725ms/sample - loss: 0.6443 - acc: 0.6659 - val_loss: 0.6281 - val_acc: 0.6633
Epoch 23/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6431 - acc: 0.6659 - val_loss: 0.6271 - val_acc: 0.6633
Epoch 24/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6419 - acc: 0.6659 - val_loss: 0.6262 - val_acc: 0.6683
Epoch 25/50
464/464 [==============================] - 338s 729ms/sample - loss: 0.6408 - acc: 0.6659 - val_loss: 0.6253 - val_acc: 0.6683
Epoch 26/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6397 - acc: 0.6659 - val_loss: 0.6244 - val_acc: 0.6683
Epoch 27/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6386 - acc: 0.6703 - val_loss: 0.6236 - val_acc: 0.6683
Epoch 28/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6376 - acc: 0.6681 - val_loss: 0.6229 - val_acc: 0.6683
Epoch 29/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6366 - acc: 0.6681 - val_loss: 0.6221 - val_acc: 0.6683
Epoch 30/50

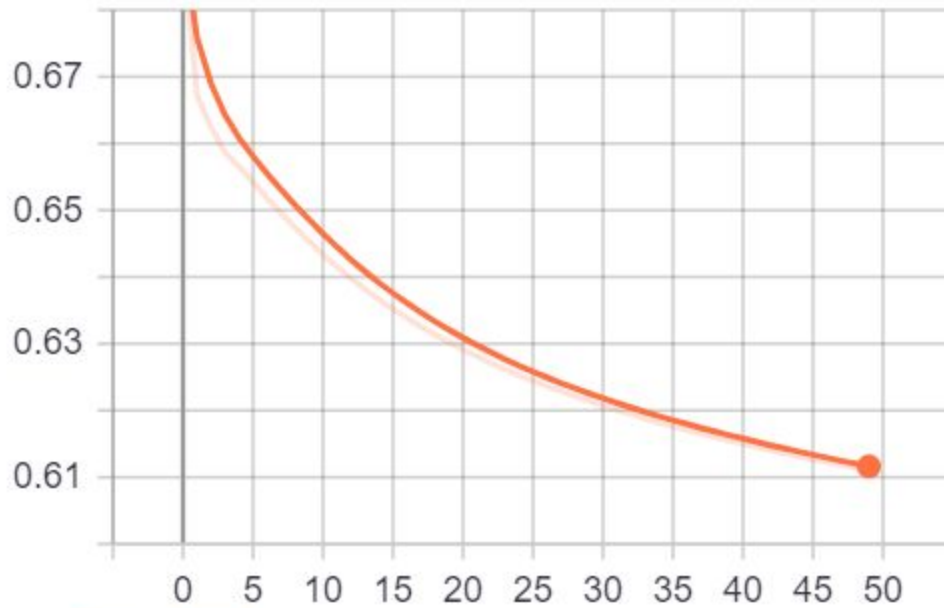464/464 [==============================] - 337s 727ms/sample - loss: 0.6357 - acc: 0.6659 - val_loss: 0.6214 - val_acc: 0.6784
Epoch 31/50
464/464 [==============================] - 338s 728ms/sample - loss: 0.6348 - acc: 0.6681 - val_loss: 0.6207 - val_acc: 0.6734
Epoch 32/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6339 - acc: 0.6681 - val_loss: 0.6201 - val_acc: 0.6734
Epoch 33/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6330 - acc: 0.6703 - val_loss: 0.6194 - val_acc: 0.6784
Epoch 34/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6322 - acc: 0.6681 - val_loss: 0.6188 - val_acc: 0.6784
Epoch 35/50
464/464 [==============================] - 336s 725ms/sample - loss: 0.6314 - acc: 0.6659 - val_loss: 0.6182 - val_acc: 0.6784
Epoch 36/50
464/464 [==============================] - 336s 725ms/sample - loss: 0.6306 - acc: 0.6681 - val_loss: 0.6176 - val_acc: 0.6734
Epoch 37/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6299 - acc: 0.6703 - val_loss: 0.6171 - val_acc: 0.6734
Epoch 38/50
464/464 [==============================] - 336s 725ms/sample - loss: 0.6291 - acc: 0.6724 - val_loss: 0.6165 - val_acc: 0.6734
Epoch 39/50
464/464 [==============================] - 337s 725ms/sample - loss: 0.6284 - acc: 0.6746 - val_loss: 0.6160 - val_acc: 0.6734
Epoch 40/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6277 - acc: 0.6746 - val_loss: 0.6155 - val_acc: 0.6784
Epoch 41/50
464/464 [==============================] - 338s 728ms/sample - loss: 0.6271 - acc: 0.6724 - val_loss: 0.6150 - val_acc: 0.6784
Epoch 42/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6264 - acc: 0.6746 - val_loss: 0.6145 - val_acc: 0.6734
Epoch 43/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6257 - acc: 0.6724 - val_loss: 0.6140 - val_acc: 0.6734
Epoch 44/50

464/464 [==============================] - 337s 726ms/sample - loss: 0.6251 - acc: 0.6724 - val_loss: 0.6136 - val_acc: 0.6734
Epoch 45/50
464/464 [==============================] - 337s 726ms/sample - loss: 0.6245 - acc: 0.6724 - val_loss: 0.6131 - val_acc: 0.6734
Epoch 46/50
464/464 [==============================] - 338s 728ms/sample - loss: 0.6239 - acc: 0.6724 - val_loss: 0.6127 - val_acc: 0.6784
Epoch 47/50
464/464 [==============================] - 337s 727ms/sample - loss: 0.6233 - acc: 0.6703 - val_loss: 0.6122 - val_acc: 0.6784
Epoch 48/50
464/464 [==============================] - 336s 725ms/sample - loss: 0.6227 - acc: 0.6703 - val_loss: 0.6118 - val_acc: 0.6784
Epoch 49/50
464/464 [==============================] - 336s 724ms/sample - loss: 0.6221 - acc: 0.6703 - val_loss: 0.6114 - val_acc: 0.6784
Epoch 50/50
464/464 [==============================] - 336s 723ms/sample - loss: 0.6216 - acc: 0.6703 - val_loss: 0.6110 - val_acc: 0.6784
<tensorflow.python.keras.callbacks.History at 0x7f4fe6a7f860>
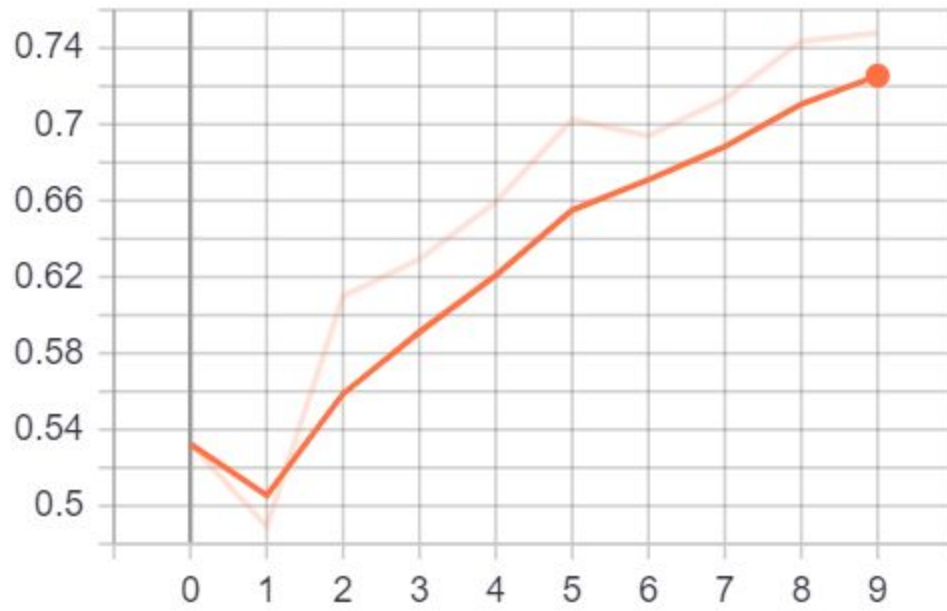
epoch_val_loss

epoch_val_loss

-
- Retrained CNN model
    - Had some issues with Tensorboard loading data (scalars) as graphs, so copied code into a new file and ran again, which worked
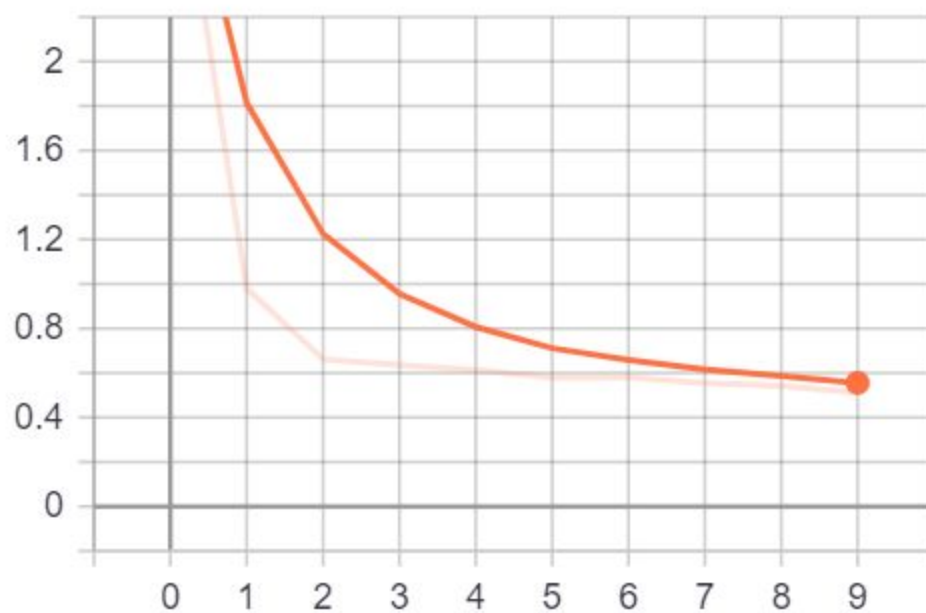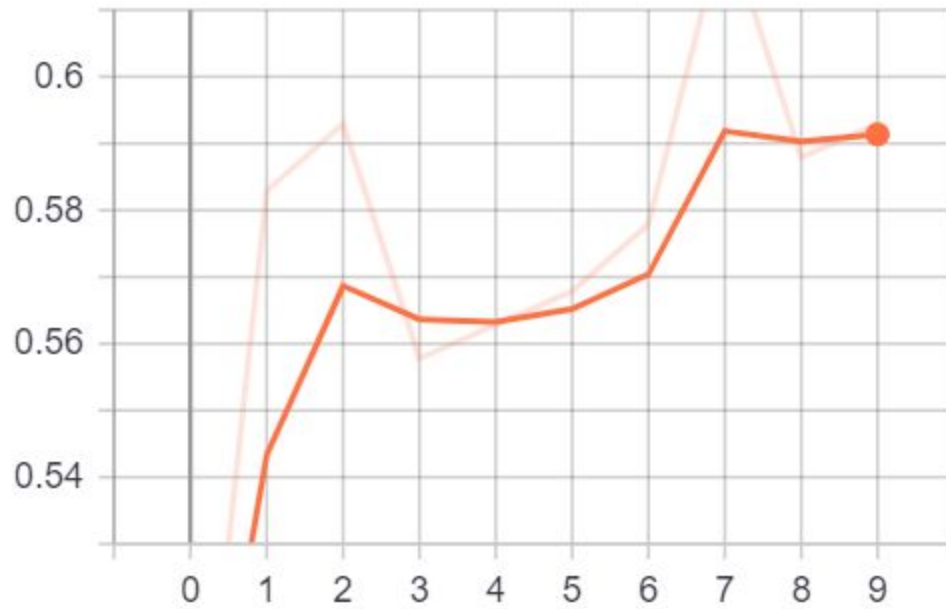
epoch_acc

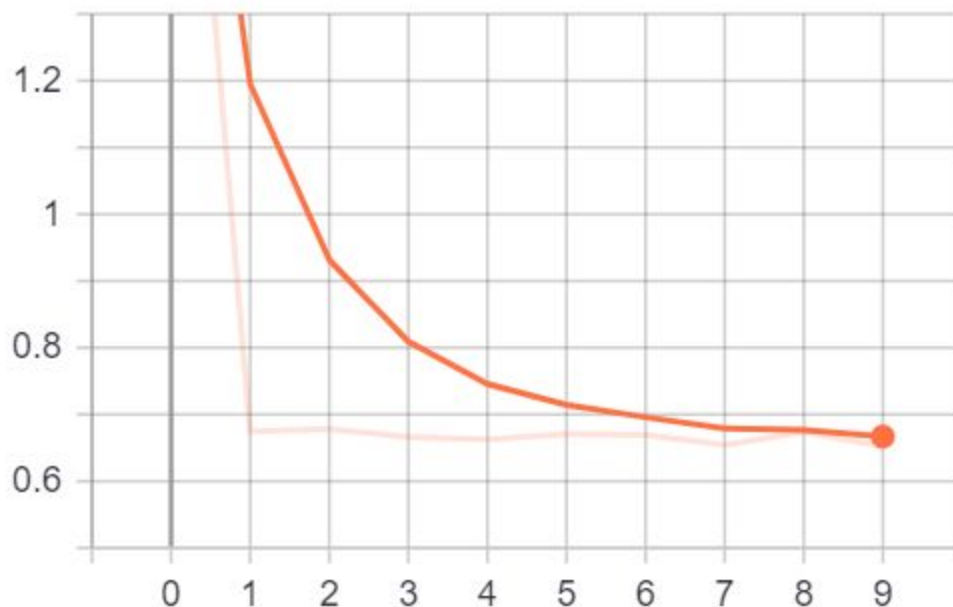epoch_acc

epoch_loss

epoch_loss

epoch_val_acc

epoch_val_acc

epoch_val_loss

epoch_val_loss

-
- Full output:

1-conv-64-nodes-0-dense-1582954102

WARNING:tensorflow:From

/usr/local/lib/python3.6/dist-packages/tensorflow_core/python/ops/resource_variable_ops.py:16

30: calling BaseResourceVariable.__init__ (from tensorflow.python.ops.resource_variable_ops)

with constraint is deprecated and will be removed in a future version.

Instructions for updating:

If using Keras pass *_constraint arguments to layers.

WARNING:tensorflow:From

/usr/local/lib/python3.6/dist-packages/tensorflow_core/python/ops/nn_impl.py:183: where (from

tensorflow.python.ops.array_ops) is deprecated and will be removed in a future version.

Instructions for updating:

Use tf.where in 2.0, which has the same broadcast rule as np.where

Train on 464 samples, validate on 199 samples

Epoch 1/10

464/464 [==============================] - 37s 79ms/sample - loss: 3.2037 - acc:

0.5323 - val_loss: 2.0608 - val_acc: 0.4774

Epoch 2/10

464/464 [==============================] - 33s 71ms/sample - loss: 0.9785 - acc: 0.4892 - val_loss: 0.6749 - val_acc: 0.5829
Epoch 3/10
464/464 [==============================] - 32s 70ms/sample - loss: 0.6615 - acc: 0.6099 - val_loss: 0.6781 - val_acc: 0.5930
Epoch 4/10
464/464 [==============================] - 33s 70ms/sample - loss: 0.6368 - acc: 0.6293 - val_loss: 0.6660 - val_acc: 0.5578
Epoch 5/10
464/464 [==============================] - 33s 71ms/sample - loss: 0.6133 - acc: 0.6595 - val_loss: 0.6628 - val_acc: 0.5628
Epoch 6/10
464/464 [==============================] - 33s 71ms/sample - loss: 0.5794 - acc: 0.7026 - val_loss: 0.6707 - val_acc: 0.5678
Epoch 7/10
464/464 [==============================] - 33s 70ms/sample - loss: 0.5807 - acc: 0.6940 - val_loss: 0.6696 - val_acc: 0.5779
Epoch 8/10
464/464 [==============================] - 33s 71ms/sample - loss: 0.5542 - acc: 0.7134 - val_loss: 0.6544 - val_acc: 0.6231
Epoch 9/10
464/464 [==============================] - 33s 71ms/sample - loss: 0.5415 - acc: 0.7435 - val_loss: 0.6739 - val_acc: 0.5879
Epoch 10/10
464/464 [==============================] - 33s 72ms/sample - loss: 0.5115 - acc: 0.7478 - val_loss: 0.6519 - val_acc: 0.5930