In my opinion this project truly highlights the importance of choosing proper training data as the model is very sensitive to the training data choice.

In the begining I spent trying simple models with the data set provided by Udacity. I incorporated, left and right images , changing brigtness and flipping images using training generator as told in lectures but car always seems to go out of road after crossing the bridge.

In 2nd part i tried Nvidia model with the udacity data. Model is taking too much time so i added max pooling layer in Nvida model to do faster training but still car is going off road after crosing bridge. Model is able to run quite well in straight road with not so sharp turn but it fails to perform well for sharp turns.

To solve above issue i collected data using simulator for sharp turns and as well as training data from mountain track. In training data i changed logic to add images which as steering angle more than 2 so that model should be able to learn important turns etc.

Also during final testing i observed car has velocity set to 9 but i was collecting simulator data at max speed around 30 . despite model is not learning steering angle with speed but i feeel it is important at what speed simulator data is collected as at higher speed less steering angle is sufficient at sharp turns while at slow speed higher steering angle is required at low speed. So itried collecting above data at speed 9 .

In [1]:
```
## Imports
import glob
import os
from PIL import Image
import csv
import numpy as np
import cv2
import random
import pandas as pd
from pandas import DataFrame
import matplotlib.pyplot as plt
import matplotlib.image as mpimg
from pathlib import Path

## Link to Udacity's sample data
paths = "data/"
os.chdir(r"data/data")
%matplotlib inline
```

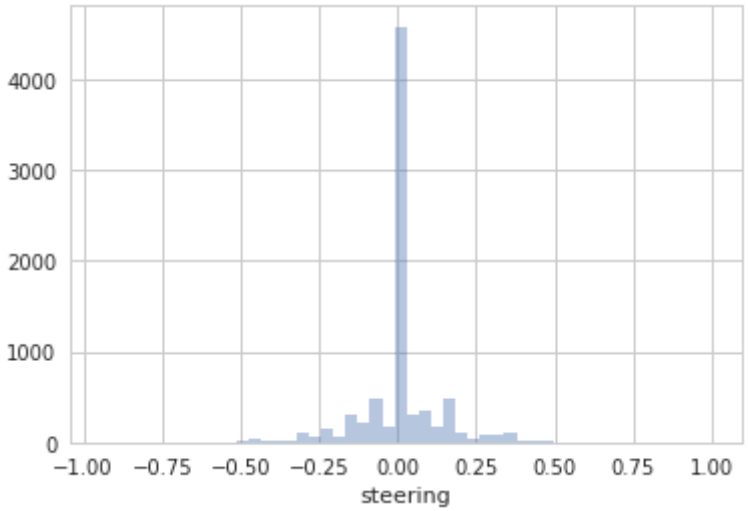
In [2]:
```
## Link to my collected  data
path_mydata = "data/"
cwd = os.getcwd()
print(cwd)
#Check size of images
new_path = os.path.join(cwd, "IMG/", "*.jpg")
print(new_path)
for infile in glob.glob(new_path)[:2]:
    im = Image.open(infile)
    print(im.size, im.mode)
```

```
/media/ashutosh/unix-extra1/udacity/udacitycCarND/Behavioral Cloning/
data/data
/media/ashutosh/unix-extra1/udacity/udacitycCarND/Behavioral Cloning/
data/data/IMG/*.jpg
(320, 160) RGB
(320, 160) RGB
```

In [2]:
```
# Import as a dataframe and plot steering
df = pd.read_csv('driving_log.csv', header=0)
df.columns = ["center_image", "left_image", "right_image",
"steering", "throttle", "break", "speed"]
df.drop(['throttle', 'break', 'speed'], axis = 1, inplace = True)
```

In [30]:
```
import seaborn as sns
sns.set(style="whitegrid", color_codes=True)
sns.distplot(df['steering'], kde = False)
```

Out[30]: <matplotlib.axes._subplots.AxesSubplot at 0x7f51cc113780>



Characteristics of the data:

- All images are 320x160 pixels
- The data is heavily skewed to zero steering as shown below:

In [7]:
```
print(len(df))
```

```
8036
```

In [32]:
```
dftoList=df.values.tolist()
```

In [33]:
```
# Break into training and validation samples
from sklearn.model_selection import train_test_split
train_samples, validation_samples = train_test_split(dftoList, test_s
ize=0.20)
```

In [34]:
```
print(len(train_samples), len(validation_samples))
batch_size = 128
```

```
6428 1608
```

We built training and validation generator using left , right and straight images. Also added random brightness and flipped images to have equal data for left as well as right steering data . Also most of the time car is going straight so i added logic that in every batch to model training add 50% images having angle less tha 2 and rest traing data having steering angle more than 2.

In [59]:

```
# Start with train generator shared in the class and add image augmen
tations
def train_generator(samples, batch_size=batch_size):
    num_samples = len(samples)
    print(num_samples)
    while 1: # Loop forever so the generator never terminates
        from sklearn.utils import shuffle
        shuffle(samples)
        for offset in range(0, num_samples, batch_size):
            batch_samples = samples[offset:offset+batch_size]
            straight_count=0
            images = []
            angles = []
            #print(batch_samples[0])
            # Read center, left and right images from a folder contai
ning Udacity data and my data
            for sample_index,batch_sample in
enumerate(batch_samples):
                cwd = os.getcwd()
                #print(cwd)
                #print(batch_sample)

                #print(batch_sample)
                center_angle = float(batch_sample[3])
                # Limit angles of less than absolute value of .1 to n
o more than 1/2 of data
                # to reduce bias of car driving straight
                if abs(center_angle) < .1:
                    straight_count += 1
                if straight_count > (batch_size * .5):
                    while abs(batch_samples[sample_index][3]) < .1:
                        sample_index = random.randrange(len(batch_sam
ples))

                    batch_sample=batch_samples[sample_index]

                center_name = cwd+'/'+batch_sample[0].strip()#.split
('/')[-1]
                if Path(center_name).exists():
                    center_image = cv2.imread(center_name)
                else:
                    print("not Found:-"+str(center_name))
                    continue
                #print(center_image.shape)
                #center_image = cv2.cvtColor(center_image, cv2.COLOR_
BGR2RGB)

                left_name = cwd+'/'+batch_sample[1].strip()#.split
('/')[-1]
                if Path(left_name).exists():
                    left_image = cv2.imread(left_name)
                else:
                    print("not Found:-"+str(left_name))
                    continue
                #left_image = cv2.cvtColor(left_image, cv2.COLOR_BGR2
RGB)
```

```
                right_name = cwd+'/'+batch_sample[2].strip()#.split
('/')[-1]
                if Path(right_name).exists():
                    right_image = cv2.imread(right_name)
                else:
                    print("not Found:-"+str(batch_sample))
                    continue
                #right_image = cv2.cvtColor(right_image, cv2.COLOR_BG
R2RGB)



                # Apply correction for left and right steering
                correction = 0.20
                left_angle = center_angle + correction
                right_angle = center_angle - correction

                # Randomly include either center, left or right image
                num = random.random()
                #print(num)
                if num <= 0.33:
                    select_image = center_image
                    select_angle = center_angle
                    images.append(select_image)
                    angles.append(select_angle)
                elif num>0.33 and num<=0.66:
                    select_image = left_image
                    select_angle = left_angle
                    images.append(select_image)
                    angles.append(select_angle)
                    #print(select_image)
                else:
                    select_image = right_image
                    select_angle = right_angle
                    images.append(select_image)
                    angles.append(select_angle)
                    #print(select_image)

                # Randomly horizontally flip selected images with 80%
 probability
                keep_prob = random.random()
                if keep_prob >0.20:
                    #print(select_image)
                    flip_image = np.fliplr(select_image)
                    flip_angle = -1*select_angle
                    images.append(flip_image)
                    angles.append(flip_angle)

                # Augment with images of different brightness
                # Randomly select a percent change
                change_pct = random.uniform(0.4, 1.2)

                # Change to HSV to change the brightness V
                hsv = cv2.cvtColor(select_image, cv2.COLOR_RGB2HSV)

                hsv[:, :, 2] = hsv[:, :, 2] * change_pct
                # Convert back to RGB and append
```

```
                bright_img = cv2.cvtColor(hsv, cv2.COLOR_HSV2RGB)
                images.append(bright_img)
                angles.append(select_angle)

                ## Randomly shear image with 80% probability
                shear_prob = random.random()
                if shear_prob >=0.20:
                    shear_range = 40
                    rows, cols, ch = select_image.shape
                    dx = np.random.randint(-shear_range, shear_range
+ 1)
                    #    print('dx',dx)
                    random_point = [cols / 2 + dx, rows / 2]
                    pts1 = np.float32([[0, rows], [cols, rows], [cols
 / 2, rows / 2]])
                    pts2 = np.float32([[0, rows], [cols, rows], rando
m_point])
                    dsteering = dx / (rows / 2) * 360 / (2 * np.pi *
25.0) / 10.0
                    M = cv2.getAffineTransform(pts1, pts2)
                    shear_image = cv2.warpAffine(center_image, M, (co
ls, rows), borderMode=1)
                    shear_angle = select_angle + dsteering
                    images.append(shear_image)
                    angles.append(shear_angle)

            # trim image to only see section with road
            X_train = np.array(images)
            y_train = np.array(angles)
            print(X_train.shape)
            yield shuffle(X_train, y_train)

def valid_generator(samples, batch_size=batch_size):
        num_samples = len(samples)
        print(cwd)
        while 1:  # Loop forever so the generator never terminates
            from sklearn.utils import shuffle
            shuffle(samples)
            for offset in range(0, num_samples, batch_size):
                batch_samples = samples[offset:offset + batch_size]

                images = []
                angles = []

                #Validation generator only has center images and no a
ugmentations
                for batch_sample in batch_samples:

                    #print(batch_sample)
                    center_name = cwd+'/' + batch_sample[0].strip()#.
split('/')[-1]
                    if Path(center_name).exists():
                        center_image = cv2.imread(center_name)
                    else:
                        print("not Found:-"+str(center_name))
                        continue
```

```
                    #center_image = cv2.cvtColor(center_image, cv2.CO
LOR_BGR2RGB)

                    center_angle = float(batch_sample[3])

                    images.append(center_image)
                    angles.append(center_angle)

                X_train = np.array(images)
                y_train = np.array(angles)
                print(X_train.shape)
                yield shuffle(X_train, y_train)
```

In [7]:
```
import tensorflow as tf
from keras.models import Sequential
from keras.layers import Dense, Dropout, Flatten, Lambda, ELU, Activa
tion
from keras.layers.convolutional import Convolution2D, Cropping2D, Zer
oPadding2D, MaxPooling2D
from keras.optimizers import SGD, Adam, RMSprop
```

```
Using TensorFlow backend.
```

In [13]:
```
def resize_normalize(image):
    import cv2
    from keras.backend import tf as ktf

    # resize to width 200 and high 66 liek recommended
    # in the nvidia paper for the used CNN
    # image = cv2.resize(image, (66, 200)) #first try
    resized = ktf.image.resize_images(image, (64, 64))
    #normalize 0-1
    resized = resized/255.0 - 0.5

    return resized
```

In [9]:
```
#Params
row, col, ch = 160, 320, 3
nb_classes = 1
```

In [165]:
```
model = Sequential()
model.add(ZeroPadding2D((1, 1), input_shape=(row, col, ch)))
# Crop pixels from top and bottom of image
model.add(Cropping2D(cropping=((60, 20), (0, 0))))

# Resise data within the neural network
model.add(Lambda(resize_normalize))

# First convolution layer so the model can automatically figure out t
he best color space for the hypothesis
model.add(Convolution2D(3, 1, 1, border_mode='same', name='color_con
v'))

# CNN model

model.add(Convolution2D(32, 3,3 ,border_mode='same', subsample=(2,2),
 name='conv1'))
model.add(Activation('relu'))
model.add(MaxPooling2D(pool_size=(2,2),strides=(1,1), name='pool1'))

model.add(Convolution2D(64, 3,3 ,border_mode='same',subsample=(2,2),
name='conv2'))
model.add(Activation('relu',name='relu2'))
model.add(MaxPooling2D(pool_size=(2,2), name='pool2'))

model.add(Convolution2D(128, 3,3,border_mode='same',subsample=(1,1),
name='conv3'))
model.add(Activation('relu'))
model.add(MaxPooling2D(pool_size= (2,2), name='pool3'))

model.add(Flatten())
model.add(Dropout(0.5))

model.add(Dense(128, name='dense1'))
model.add(Activation('relu'))
model.add(Dropout(0.5))

model.add(Dense(128, name='dense2'))

model.add(Dense(1,name='output'))

model.compile(optimizer=Adam(lr= 0.0001), loss="mse")
```

In [166]:
```
print(model.summary())
```

```
____________________________________________________________________________
____________________________________
Layer (type)                 Output Shape              Param #     Co
nnected to
============================================================================
==================================
zeropadding2d_8 (ZeroPadding2D)  (None, 162, 322, 3)   0           ze
ropadding2d_input_8[0][0]
____________________________________________________________________________
____________________________________
cropping2d_8 (Cropping2D)        (None, 82, 322, 3)    0           ze
ropadding2d_8[0][0]
____________________________________________________________________________
____________________________________
lambda_12 (Lambda)               (None, 64, 64, 3)     0           cr
opping2d_8[0][0]
____________________________________________________________________________
____________________________________
color_conv (Convolution2D)       (None, 64, 64, 3)     12          la
mbda_12[0][0]
____________________________________________________________________________
____________________________________
conv1 (Convolution2D)            (None, 32, 32, 32)    896         co
lor_conv[0][0]
____________________________________________________________________________
____________________________________
activation_22 (Activation)       (None, 32, 32, 32)    0           co
nv1[0][0]
____________________________________________________________________________
____________________________________
pool1 (MaxPooling2D)             (None, 31, 31, 32)    0           ac
tivation_22[0][0]
____________________________________________________________________________
____________________________________
conv2 (Convolution2D)            (None, 16, 16, 64)    18496       po
ol1[0][0]
____________________________________________________________________________
____________________________________
relu2 (Activation)               (None, 16, 16, 64)    0           co
nv2[0][0]
____________________________________________________________________________
____________________________________
pool2 (MaxPooling2D)             (None, 8, 8, 64)      0           re
lu2[0][0]
____________________________________________________________________________
____________________________________
conv3 (Convolution2D)            (None, 8, 8, 128)     73856       po
ol2[0][0]
____________________________________________________________________________
____________________________________
activation_23 (Activation)       (None, 8, 8, 128)     0           co
nv3[0][0]
____________________________________________________________________________
____________________________________
pool3 (MaxPooling2D)             (None, 4, 4, 128)     0           ac
tivation_23[0][0]
____________________________________________________________________________
```

```
____________________________________
flatten_8 (Flatten)              (None, 2048)          0           po
ol3[0][0]
____________________________________________________________________
____________________________________
dropout_15 (Dropout)             (None, 2048)          0           fl
atten_8[0][0]
____________________________________________________________________
____________________________________
dense1 (Dense)                   (None, 128)           262272      dr
opout_15[0][0]
____________________________________________________________________
____________________________________
activation_24 (Activation)       (None, 128)           0           de
nse1[0][0]
____________________________________________________________________
____________________________________
dropout_16 (Dropout)             (None, 128)           0           ac
tivation_24[0][0]
____________________________________________________________________
____________________________________
dense2 (Dense)                   (None, 128)           16512       dr
opout_16[0][0]
____________________________________________________________________
____________________________________
output (Dense)                   (None, 1)             129         de
nse2[0][0]
====================================================================
==============================
Total params: 372,173
Trainable params: 372,173
Non-trainable params: 0
____________________________________________________________________
____________________________________
None
```

In [10]:
```
#save every model using Keras checkpoint
from keras.callbacks import ModelCheckpoint
filepath="check-{epoch:02d}-{val_loss:.4f}.hdf5"
checkpoint = ModelCheckpoint(filepath= filepath, verbose=1, save_best
_only=False)
callbacks_list = [checkpoint]
```

In [26]:
```
nb_epoch = 5
samples_per_epoch = 2000
nb_val_samples = 2000
```

In [47]:
```
train_generator = train_generator(train_samples, batch_size=batch_siz
e)
validation_generator = valid_generator(validation_samples,
batch_size=batch_size)
```

In [170]:
```
#Model fit generator
history_object = model.fit_generator(train_generator, samples_per_epo
ch= samples_per_epoch,
                                     validation_data=validation_gener
ator,
                                     nb_val_samples=nb_val_samples, n
b_epoch=nb_epoch, verbose=1, callbacks=callbacks_list)
```

```
6428
Epoch 1/15
(469, 160, 320, 3)
(456, 160, 320, 3)
(472, 160, 320, 3)
  469/20000 [..............................] - ETA: 108s - loss: 0.05
21(458, 160, 320, 3)
  925/20000 [>.............................] - ETA: 87s - loss: 0.059
0 (452, 160, 320, 3)
(457, 160, 320, 3)
 1397/20000 [=>............................] - ETA: 80s - loss: 0.057
5(465, 160, 320, 3)
(456, 160, 320, 3)
 1855/20000 [=>............................] - ETA: 76s - loss: 0.055
4(464, 160, 320, 3)
(461, 160, 320, 3)
 2307/20000 [==>...........................] - ETA: 72s - loss: 0.054
5(448, 160, 320, 3)
 2764/20000 [===>..........................] - ETA: 69s - loss: 0.054
4(470, 160, 320, 3)
(450, 160, 320, 3)
 3229/20000 [===>..........................] - ETA: 83s - loss: 0.053
8(471, 160, 320, 3)
(459, 160, 320, 3)
 3685/20000 [====>.........................] - ETA: 101s - loss: 0.05
19(451, 160, 320, 3)
 4149/20000 [=====>........................] - ETA: 114s - loss: 0.05
06(467, 160, 320, 3)
(462, 160, 320, 3)
 4610/20000 [=====>........................] - ETA: 120s - loss: 0.04
95(466, 160, 320, 3)
(455, 160, 320, 3)
 5058/20000 [======>.......................] - ETA: 124s - loss: 0.04
87(463, 160, 320, 3)
 5528/20000 [=======>......................] - ETA: 127s - loss: 0.04
73(460, 160, 320, 3)
(462, 160, 320, 3)
 5978/20000 [=======>......................] - ETA: 127s - loss: 0.04
67(461, 160, 320, 3)
 6449/20000 [========>.....................] - ETA: 127s - loss: 0.04
60(467, 160, 320, 3)
 6908/20000 [=========>.....................] - ETA: 126s - loss: 0.04
60(466, 160, 320, 3)
 7359/20000 [==========>....................] - ETA: 125s - loss: 0.04
57(450, 160, 320, 3)
 7826/20000 [==========>....................] - ETA: 125s - loss: 0.04
59(459, 160, 320, 3)
 8288/20000 [===========>...................] - ETA: 122s - loss: 0.04
64(458, 160, 320, 3)
 8754/20000 [============>..................] - ETA: 120s - loss: 0.04
64(464, 160, 320, 3)
 9209/20000 [============>..................] - ETA: 117s - loss: 0.04
60(462, 160, 320, 3)
 9672/20000 [=============>.................] - ETA: 113s - loss: 0.04
55(468, 160, 320, 3)
10132/20000 [==============>................] - ETA: 109s - loss: 0.04
54(462, 160, 320, 3)
```

```
10594/20000 [==============>..............] - ETA: 105s - loss: 0.04
47(469, 160, 320, 3)
11055/20000 [===============>.............] - ETA: 101s - loss: 0.04
46(456, 160, 320, 3)
11522/20000 [================>............] - ETA: 96s - loss: 0.044
2 (462, 160, 320, 3)
11988/20000 [================>............] - ETA: 91s - loss: 0.043
9(461, 160, 320, 3)
12438/20000 [=================>............] - ETA: 87s - loss: 0.043
6(464, 160, 320, 3)
12897/20000 [=================>............] - ETA: 82s - loss: 0.043
6(461, 160, 320, 3)
13355/20000 [==================>...........] - ETA: 77s - loss: 0.043
3(472, 160, 320, 3)
13819/20000 [==================>...........] - ETA: 72s - loss: 0.043
3(464, 160, 320, 3)
14281/20000 [===================>..........] - ETA: 67s - loss: 0.043
1(463, 160, 320, 3)
14749/20000 [====================>.........] - ETA: 62s - loss: 0.043
2(469, 160, 320, 3)
15211/20000 [====================>.........] - ETA: 57s - loss: 0.042
9(468, 160, 320, 3)
15680/20000 [=====================>........] - ETA: 51s - loss: 0.043
2(461, 160, 320, 3)
16136/20000 [======================>.......] - ETA: 45s - loss: 0.043
2(465, 160, 320, 3)
16598/20000 [======================>.......] - ETA: 39s - loss: 0.043
1(466, 160, 320, 3)
17059/20000 [=======================>......] - ETA: 33s - loss: 0.043
0(461, 160, 320, 3)
17523/20000 [========================>.....] - ETA: 27s - loss: 0.043
2(459, 160, 320, 3)
17984/20000 [========================>.....] - ETA: 22s - loss: 0.043
0(456, 160, 320, 3)
18456/20000 [=========================>....] - ETA: 16s - loss: 0.042
7(105, 160, 320, 3)
18920/20000 [=========================>....] - ETA: 11s - loss: 0.042
4(466, 160, 320, 3)
19383/20000 [==========================>...] - ETA: 6s - loss: 0.0423
 (465, 160, 320, 3)
19852/20000 [==========================>...] - ETA: 1s - loss: 0.0423
(448, 160, 320, 3)
```

```
/media/ashutosh/unix-extra1/anaconda3/envs/carnd-term1/lib/python3.5/
site-packages/keras/engine/training.py:1569: UserWarning: Epoch compr
ised more than `samples_per_epoch` samples, which might affect learni
ng results. Set `samples_per_epoch` correctly to avoid this warning.
  warnings.warn('Epoch comprised more than '
```

```
/media/ashutosh/unix-extra1/udacity/udacitycCarND/Behavioral Cloning/
data
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00000: saving model to check-00-0.0128.hdf5
20320/20000 [==============================] - 214s - loss: 0.0421 -
 val_loss: 0.0128
Epoch 2/15
(458, 160, 320, 3)
  461/20000 [..............................] - ETA: 77s - loss: 0.031
3(471, 160, 320, 3)
  926/20000 [>.............................] - ETA: 75s - loss: 0.032
9(469, 160, 320, 3)
 1392/20000 [=>............................] - ETA: 71s - loss: 0.031
7(458, 160, 320, 3)
 1853/20000 [=>............................] - ETA: 69s - loss: 0.033
3(464, 160, 320, 3)
 2312/20000 [==>...........................] - ETA: 67s - loss: 0.033
9(461, 160, 320, 3)
 2873/20000 [===>..........................] - ETA: 65s - loss: 0.035
9(460, 160, 320, 3)
(456, 160, 320, 3)
 3339/20000 [====>.........................] - ETA: 67s - loss: 0.035
6(470, 160, 320, 3)
 3804/20000 [====>.........................] - ETA: 65s - loss: 0.035
2(459, 160, 320, 3)
 4252/20000 [=====>........................] - ETA: 62s - loss: 0.035
0(462, 160, 320, 3)
 4710/20000 [======>.......................] - ETA: 60s - loss: 0.034
7(464, 160, 320, 3)
 5181/20000 [======>.......................] - ETA: 58s - loss: 0.034
5(455, 160, 320, 3)
```

```
 5650/20000 [=======>......................] - ETA: 56s - loss: 0.034
8(453, 160, 320, 3)
 6108/20000 [========>.....................] - ETA: 54s - loss: 0.034
7(459, 160, 320, 3)
 6572/20000 [========>.....................] - ETA: 52s - loss: 0.034
7(456, 160, 320, 3)
 7033/20000 [=========>....................] - ETA: 50s - loss: 0.034
2(464, 160, 320, 3)
 7493/20000 [==========>...................] - ETA: 48s - loss: 0.034
2(454, 160, 320, 3)
 7949/20000 [==========>...................] - ETA: 47s - loss: 0.034
0(465, 160, 320, 3)
 8419/20000 [===========>..................] - ETA: 45s - loss: 0.034
0(462, 160, 320, 3)
 8878/20000 [============>.................] - ETA: 43s - loss: 0.033
7(452, 160, 320, 3)
 9340/20000 [=============>................] - ETA: 41s - loss: 0.033
6(467, 160, 320, 3)
 9804/20000 [=============>................] - ETA: 40s - loss: 0.034
0(465, 160, 320, 3)
10259/20000 [==============>...............] - ETA: 38s - loss: 0.034
4(453, 160, 320, 3)
10712/20000 [===============>..............] - ETA: 36s - loss: 0.034
3(461, 160, 320, 3)
11171/20000 [===============>..............] - ETA: 34s - loss: 0.034
3(465, 160, 320, 3)
11627/20000 [================>.............] - ETA: 32s - loss: 0.034
6(463, 160, 320, 3)
12091/20000 [=================>............] - ETA: 31s - loss: 0.034
5(462, 160, 320, 3)
12545/20000 [=================>............] - ETA: 29s - loss: 0.034
5(457, 160, 320, 3)
13010/20000 [==================>...........] - ETA: 27s - loss: 0.034
5(460, 160, 320, 3)
13472/20000 [===================>..........] - ETA: 25s - loss: 0.034
2(459, 160, 320, 3)
13924/20000 [===================>..........] - ETA: 23s - loss: 0.034
2(466, 160, 320, 3)
14391/20000 [====================>.........] - ETA: 22s - loss: 0.034
2(460, 160, 320, 3)
14856/20000 [=====================>........] - ETA: 20s - loss: 0.033
9(450, 160, 320, 3)
15309/20000 [=====================>........] - ETA: 18s - loss: 0.033
7(458, 160, 320, 3)
15770/20000 [======================>.......] - ETA: 16s - loss: 0.033
8(457, 160, 320, 3)
16235/20000 [=======================>......] - ETA: 14s - loss: 0.033
8(459, 160, 320, 3)
16698/20000 [=======================>......] - ETA: 13s - loss: 0.033
8(456, 160, 320, 3)
17160/20000 [========================>.....] - ETA: 11s - loss: 0.033
6(470, 160, 320, 3)
17617/20000 [========================>....] - ETA: 9s - loss: 0.0336
 (449, 160, 320, 3)
18077/20000 [=========================>...] - ETA: 7s - loss: 0.0335
(460, 160, 320, 3)
18536/20000 [=========================>...] - ETA: 5s - loss: 0.0335
```

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(463, 160, 320, 3)
19002/20000 [===========================>..] - ETA: 3s - loss: 0.0334
(451, 160, 320, 3)
19462/20000 [============================>.] - ETA: 2s - loss: 0.0335
(468, 160, 320, 3)
19912/20000 [============================>.] - ETA: 0s - loss: 0.0334
(456, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00001: saving model to check-01-0.0124.hdf5
20370/20000 [==============================] - 86s - loss: 0.0337 - v
al_loss: 0.0124
Epoch 3/15
(460, 160, 320, 3)
  457/20000 [..............................] - ETA: 85s - loss: 0.031
6(458, 160, 320, 3)
  916/20000 [>.............................] - ETA: 83s - loss: 0.028
0(101, 160, 320, 3)
 1372/20000 [=>............................] - ETA: 80s - loss: 0.027
3(461, 160, 320, 3)
 1842/20000 [=>............................] - ETA: 77s - loss: 0.028
8(449, 160, 320, 3)
 2291/20000 [==>...........................] - ETA: 74s - loss: 0.030
9(466, 160, 320, 3)
 2751/20000 [===>..........................] - ETA: 71s - loss: 0.031
4(459, 160, 320, 3)
 3214/20000 [===>..........................] - ETA: 67s - loss: 0.031
5(469, 160, 320, 3)
 3665/20000 [====>.........................] - ETA: 65s - loss: 0.031
1(458, 160, 320, 3)
 4133/20000 [=====>........................] - ETA: 62s - loss: 0.030
8(457, 160, 320, 3)
```

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 4589/20000 [=====>.....................] - ETA: 59s - loss: 0.030
6(469, 160, 320, 3)
 5049/20000 [======>.....................] - ETA: 57s - loss: 0.030
7(459, 160, 320, 3)
 5608/20000 [=======>.....................] - ETA: 55s - loss: 0.031
6(460, 160, 320, 3)
(462, 160, 320, 3)
 6069/20000 [========>.....................] - ETA: 53s - loss: 0.031
4(480, 160, 320, 3)
 6518/20000 [========>.....................] - ETA: 51s - loss: 0.031
8(451, 160, 320, 3)
 6984/20000 [=========>.....................] - ETA: 49s - loss: 0.031
7(464, 160, 320, 3)
 7443/20000 [==========>.....................] - ETA: 47s - loss: 0.031
2(457, 160, 320, 3)
 7912/20000 [==========>.....................] - ETA: 45s - loss: 0.031
0(445, 160, 320, 3)
 8370/20000 [===========>.....................] - ETA: 43s - loss: 0.030
9(468, 160, 320, 3)
 8827/20000 [============>.....................] - ETA: 41s - loss: 0.031
1(454, 160, 320, 3)
 9296/20000 [============>.....................] - ETA: 39s - loss: 0.031
1(466, 160, 320, 3)
 9755/20000 [=============>.....................] - ETA: 37s - loss: 0.030
9(463, 160, 320, 3)
10215/20000 [==============>.....................] - ETA: 36s - loss: 0.030
7(459, 160, 320, 3)
10677/20000 [===============>.....................] - ETA: 34s - loss: 0.030
5(462, 160, 320, 3)
11157/20000 [===============>.....................] - ETA: 32s - loss: 0.030
4(464, 160, 320, 3)
11608/20000 [================>.....................] - ETA: 30s - loss: 0.030
3(459, 160, 320, 3)
12072/20000 [=================>.....................] - ETA: 28s - loss: 0.030
2(456, 160, 320, 3)
12529/20000 [=================>.....................] - ETA: 27s - loss: 0.030
2(461, 160, 320, 3)
12974/20000 [==================>.....................] - ETA: 25s - loss: 0.030
2(455, 160, 320, 3)
13442/20000 [===================>.....................] - ETA: 23s - loss: 0.030
4(467, 160, 320, 3)
13896/20000 [===================>.....................] - ETA: 22s - loss: 0.030
6(460, 160, 320, 3)
14362/20000 [====================>.....................] - ETA: 20s - loss: 0.030
8(468, 160, 320, 3)
14825/20000 [=====================>.....................] - ETA: 18s - loss: 0.030
7(461, 160, 320, 3)
15284/20000 [=====================>.....................] - ETA: 17s - loss: 0.030
6(461, 160, 320, 3)
15746/20000 [======================>.....................] - ETA: 15s - loss: 0.030
6(458, 160, 320, 3)
16210/20000 [=======================>.....................] - ETA: 13s - loss: 0.030
4(453, 160, 320, 3)
16669/20000 [========================>.....................] - ETA: 12s - loss: 0.030
5(465, 160, 320, 3)
17125/20000 [========================>.....................] - ETA: 10s - loss: 0.030
4(470, 160, 320, 3)
```

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17586/20000 [=========================>....] - ETA: 8s - loss: 0.0304
 (455, 160, 320, 3)
18041/20000 [==========================>...] - ETA: 7s - loss: 0.0303
(461, 160, 320, 3)
18508/20000 [==========================>...] - ETA: 5s - loss: 0.0303
(461, 160, 320, 3)
18968/20000 [==========================>..] - ETA: 3s - loss: 0.0303
(473, 160, 320, 3)
19436/20000 [===========================>.] - ETA: 2s - loss: 0.0304
(455, 160, 320, 3)
19897/20000 [===========================>.] - ETA: 0s - loss: 0.0303
(461, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00002: saving model to check-02-0.0123.hdf5
20358/20000 [==============================] - 79s - loss: 0.0303 - v
al_loss: 0.0123
Epoch 4/15
(461, 160, 320, 3)
  458/20000 [..............................] - ETA: 64s - loss: 0.028
0(464, 160, 320, 3)
  911/20000 [>.............................] - ETA: 79s - loss: 0.034
4(454, 160, 320, 3)
 1376/20000 [=>............................] - ETA: 73s - loss: 0.032
9(461, 160, 320, 3)
 1846/20000 [=>............................] - ETA: 76s - loss: 0.032
9(467, 160, 320, 3)
 2301/20000 [==>...........................] - ETA: 71s - loss: 0.031
9(458, 160, 320, 3)
 2762/20000 [===>..........................] - ETA: 70s - loss: 0.033
7(458, 160, 320, 3)
 3223/20000 [===>..........................] - ETA: 68s - loss: 0.033
```

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7(456, 160, 320, 3)
 3696/20000 [====>.......................] - ETA: 66s - loss: 0.032
2(103, 160, 320, 3)
 4151/20000 [=====>......................] - ETA: 63s - loss: 0.031
2(455, 160, 320, 3)
 4612/20000 [=====>......................] - ETA: 61s - loss: 0.030
8(466, 160, 320, 3)
 5073/20000 [======>.....................] - ETA: 59s - loss: 0.031
1(468, 160, 320, 3)
 5537/20000 [=======>.....................] - ETA: 56s - loss: 0.031
0(452, 160, 320, 3)
 5991/20000 [=======>.....................] - ETA: 54s - loss: 0.031
1(469, 160, 320, 3)
 6452/20000 [========>.....................] - ETA: 52s - loss: 0.031
1(452, 160, 320, 3)
 6919/20000 [=========>.....................] - ETA: 50s - loss: 0.030
6(464, 160, 320, 3)
 7377/20000 [==========>.....................] - ETA: 48s - loss: 0.030
1(466, 160, 320, 3)
 7835/20000 [==========>.....................] - ETA: 46s - loss: 0.030
2(458, 160, 320, 3)
 8394/20000 [===========>.....................] - ETA: 44s - loss: 0.030
9(450, 160, 320, 3)
(466, 160, 320, 3)
 8849/20000 [============>.....................] - ETA: 42s - loss: 0.030
5(462, 160, 320, 3)
 9315/20000 [============>.....................] - ETA: 40s - loss: 0.030
4(454, 160, 320, 3)
 9783/20000 [=============>.....................] - ETA: 38s - loss: 0.030
1(466, 160, 320, 3)
10235/20000 [==============>.....................] - ETA: 36s - loss: 0.029
9(456, 160, 320, 3)
10704/20000 [===============>.....................] - ETA: 34s - loss: 0.029
8(474, 160, 320, 3)
11156/20000 [===============>.....................] - ETA: 33s - loss: 0.029
6(450, 160, 320, 3)
11620/20000 [================>.....................] - ETA: 31s - loss: 0.029
6(459, 160, 320, 3)
12086/20000 [=================>.....................] - ETA: 29s - loss: 0.029
6(462, 160, 320, 3)
12544/20000 [=================>.....................] - ETA: 27s - loss: 0.029
5(448, 160, 320, 3)
12994/20000 [==================>.....................] - ETA: 25s - loss: 0.029
5(459, 160, 320, 3)
13460/20000 [===================>.....................] - ETA: 24s - loss: 0.029
3(457, 160, 320, 3)
13922/20000 [===================>.....................] - ETA: 22s - loss: 0.029
2(459, 160, 320, 3)
14376/20000 [====================>.....................] - ETA: 20s - loss: 0.029
1(451, 160, 320, 3)
14842/20000 [====================>.....................] - ETA: 18s - loss: 0.028
9(465, 160, 320, 3)
15298/20000 [=====================>.....................] - ETA: 17s - loss: 0.029
0(460, 160, 320, 3)
15772/20000 [======================>.....................] - ETA: 15s - loss: 0.029
5(458, 160, 320, 3)
16222/20000 [=======================>.....................] - ETA: 13s - loss: 0.029
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4(465, 160, 320, 3)
16681/20000 [========================>.....] - ETA: 12s - loss: 0.029
6(454, 160, 320, 3)
17143/20000 [========================>.....] - ETA: 10s - loss: 0.029
5(471, 160, 320, 3)
17591/20000 [========================>....] - ETA: 8s - loss: 0.0296
 (461, 160, 320, 3)
18050/20000 [=========================>...] - ETA: 7s - loss: 0.0294
(460, 160, 320, 3)
18507/20000 [=========================>...] - ETA: 5s - loss: 0.0295
(458, 160, 320, 3)
18966/20000 [==========================>..] - ETA: 3s - loss: 0.0292
(455, 160, 320, 3)
19417/20000 [==========================>.] - ETA: 2s - loss: 0.0292
(470, 160, 320, 3)
19882/20000 [==========================>.] - ETA: 0s - loss: 0.0291
(448, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00003: saving model to check-03-0.0120.hdf5
20342/20000 [==============================] - 79s - loss: 0.0290 - v
al_loss: 0.0120
Epoch 5/15
(453, 160, 320, 3)
  458/20000 [..............................] - ETA: 70s - loss: 0.028
1(451, 160, 320, 3)
  923/20000 [>.............................] - ETA: 69s - loss: 0.029
1(457, 160, 320, 3)
 1377/20000 [=>............................] - ETA: 69s - loss: 0.027
8(453, 160, 320, 3)
 1848/20000 [=>............................] - ETA: 68s - loss: 0.027
6(473, 160, 320, 3)
```

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 2309/20000 [==>............................] - ETA: 66s - loss: 0.026
7(459, 160, 320, 3)
 2769/20000 [===>...........................] - ETA: 64s - loss: 0.026
7(465, 160, 320, 3)
 3227/20000 [===>...........................] - ETA: 62s - loss: 0.026
3(455, 160, 320, 3)
 3682/20000 [====>..........................] - ETA: 60s - loss: 0.027
6(468, 160, 320, 3)
 4152/20000 [=====>.........................] - ETA: 58s - loss: 0.027
9(468, 160, 320, 3)
 4600/20000 [=====>.........................] - ETA: 56s - loss: 0.028
3(466, 160, 320, 3)
 5053/20000 [======>........................] - ETA: 55s - loss: 0.028
2(473, 160, 320, 3)
 5504/20000 [=======>.......................] - ETA: 53s - loss: 0.029
3(463, 160, 320, 3)
 5961/20000 [=======>.......................] - ETA: 51s - loss: 0.029
3(452, 160, 320, 3)
 6414/20000 [========>......................] - ETA: 49s - loss: 0.029
0(104, 160, 320, 3)
 6887/20000 [=========>.....................] - ETA: 47s - loss: 0.028
6(457, 160, 320, 3)
 7346/20000 [==========>....................] - ETA: 46s - loss: 0.028
4(473, 160, 320, 3)
 7811/20000 [==========>....................] - ETA: 44s - loss: 0.028
4(469, 160, 320, 3)
 8266/20000 [===========>...................] - ETA: 42s - loss: 0.028
2(463, 160, 320, 3)
 8734/20000 [============>..................] - ETA: 40s - loss: 0.028
0(448, 160, 320, 3)
 9202/20000 [============>..................] - ETA: 39s - loss: 0.027
8(457, 160, 320, 3)
 9668/20000 [=============>.................] - ETA: 37s - loss: 0.027
7(456, 160, 320, 3)
10141/20000 [==============>................] - ETA: 35s - loss: 0.027
5(463, 160, 320, 3)
10604/20000 [==============>................] - ETA: 33s - loss: 0.027
4(453, 160, 320, 3)
11160/20000 [===============>..............] - ETA: 31s - loss: 0.027
8(449, 160, 320, 3)
(462, 160, 320, 3)
11617/20000 [================>.............] - ETA: 30s - loss: 0.027
8(458, 160, 320, 3)
12090/20000 [=================>............] - ETA: 28s - loss: 0.027
7(453, 160, 320, 3)
12559/20000 [=================>............] - ETA: 26s - loss: 0.027
7(462, 160, 320, 3)
13022/20000 [==================>...........] - ETA: 25s - loss: 0.027
6(446, 160, 320, 3)
13470/20000 [===================>..........] - ETA: 23s - loss: 0.027
5(463, 160, 320, 3)
13927/20000 [===================>..........] - ETA: 21s - loss: 0.027
4(455, 160, 320, 3)
14383/20000 [====================>.........] - ETA: 20s - loss: 0.027
4(461, 160, 320, 3)
14846/20000 [=====================>........] - ETA: 18s - loss: 0.027
4(463, 160, 320, 3)
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15299/20000 [=====================>........] - ETA: 16s - loss: 0.027
3(455, 160, 320, 3)
15748/20000 [======================>.......] - ETA: 15s - loss: 0.027
2(465, 160, 320, 3)
16210/20000 [======================>......] - ETA: 13s - loss: 0.027
1(472, 160, 320, 3)
16668/20000 [=======================>.....] - ETA: 11s - loss: 0.027
0(462, 160, 320, 3)
17121/20000 [=======================>.....] - ETA: 10s - loss: 0.026
9(461, 160, 320, 3)
17583/20000 [========================>....] - ETA: 8s - loss: 0.0269
 (455, 160, 320, 3)
18029/20000 [========================>...] - ETA: 7s - loss: 0.0269
(459, 160, 320, 3)
18492/20000 [=========================>...] - ETA: 5s - loss: 0.0271
(458, 160, 320, 3)
18947/20000 [=========================>..] - ETA: 3s - loss: 0.0272
(467, 160, 320, 3)
19408/20000 [==========================>.] - ETA: 2s - loss: 0.0272
(460, 160, 320, 3)
19871/20000 [==========================>.] - ETA: 0s - loss: 0.0273
(459, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00004: saving model to check-04-0.0113.hdf5
20326/20000 [==============================] - 80s - loss: 0.0273 - v
al_loss: 0.0113
Epoch 6/15
(466, 160, 320, 3)
  465/20000 [..............................] - ETA: 73s - loss: 0.023
2(467, 160, 320, 3)
  937/20000 [>.............................] - ETA: 69s - loss: 0.026
```

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4(466, 160, 320, 3)
 1399/20000 [=>............................] - ETA: 67s - loss: 0.024
1(460, 160, 320, 3)
 1860/20000 [=>............................] - ETA: 66s - loss: 0.024
2(460, 160, 320, 3)
 2315/20000 [==>...........................] - ETA: 64s - loss: 0.024
1(465, 160, 320, 3)
 2774/20000 [===>..........................] - ETA: 63s - loss: 0.024
5(465, 160, 320, 3)
 3232/20000 [===>..........................] - ETA: 62s - loss: 0.024
6(446, 160, 320, 3)
 3699/20000 [====>.........................] - ETA: 61s - loss: 0.024
6(466, 160, 320, 3)
 4159/20000 [=====>........................] - ETA: 59s - loss: 0.024
4(452, 160, 320, 3)
 4618/20000 [=====>........................] - ETA: 58s - loss: 0.024
3(456, 160, 320, 3)
 5084/20000 [======>.......................] - ETA: 55s - loss: 0.024
6(457, 160, 320, 3)
 5551/20000 [=======>......................] - ETA: 53s - loss: 0.024
6(464, 160, 320, 3)
 6017/20000 [========>.....................] - ETA: 53s - loss: 0.024
6(455, 160, 320, 3)
 6477/20000 [========>.....................] - ETA: 50s - loss: 0.025
3(471, 160, 320, 3)
 6937/20000 [=========>....................] - ETA: 50s - loss: 0.025
5(459, 160, 320, 3)
 7402/20000 [==========>...................] - ETA: 48s - loss: 0.025
6(463, 160, 320, 3)
 7867/20000 [==========>...................] - ETA: 47s - loss: 0.025
7(461, 160, 320, 3)
 8313/20000 [===========>..................] - ETA: 44s - loss: 0.025
8(452, 160, 320, 3)
 8779/20000 [============>.................] - ETA: 43s - loss: 0.025
9(471, 160, 320, 3)
 9231/20000 [============>.................] - ETA: 41s - loss: 0.025
7(103, 160, 320, 3)
 9687/20000 [=============>................] - ETA: 40s - loss: 0.025
4(446, 160, 320, 3)
10144/20000 [==============>...............] - ETA: 38s - loss: 0.025
5(457, 160, 320, 3)
10608/20000 [==============>...............] - ETA: 36s - loss: 0.025
6(462, 160, 320, 3)
11063/20000 [===============>..............] - ETA: 34s - loss: 0.025
6(465, 160, 320, 3)
11534/20000 [================>.............] - ETA: 33s - loss: 0.025
6(455, 160, 320, 3)
11993/20000 [================>.............] - ETA: 31s - loss: 0.025
6(463, 160, 320, 3)
12456/20000 [=================>............] - ETA: 29s - loss: 0.025
4(456, 160, 320, 3)
12917/20000 [==================>...........] - ETA: 28s - loss: 0.025
4(464, 160, 320, 3)
13369/20000 [==================>...........] - ETA: 26s - loss: 0.025
3(469, 160, 320, 3)
13943/20000 [===================>..........] - ETA: 24s - loss: 0.025
7(465, 160, 320, 3)
```

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(465, 160, 320, 3)
14389/20000 [====================>.........] - ETA: 22s - loss: 0.025
5(452, 160, 320, 3)
14846/20000 [====================>........] - ETA: 20s - loss: 0.025
5(461, 160, 320, 3)
15308/20000 [====================>........] - ETA: 18s - loss: 0.025
5(456, 160, 320, 3)
15773/20000 [=====================>.......] - ETA: 16s - loss: 0.025
3(455, 160, 320, 3)
16228/20000 [=====================>......] - ETA: 15s - loss: 0.025
2(461, 160, 320, 3)
16691/20000 [======================>.....] - ETA: 13s - loss: 0.025
2(468, 160, 320, 3)
17147/20000 [======================>.....] - ETA: 11s - loss: 0.025
2(463, 160, 320, 3)
17611/20000 [======================>....] - ETA: 9s - loss: 0.0252
 (465, 160, 320, 3)
18080/20000 [=======================>...] - ETA: 7s - loss: 0.0251
(477, 160, 320, 3)
18545/20000 [=======================>...] - ETA: 5s - loss: 0.0252
(458, 160, 320, 3)
19010/20000 [========================>..] - ETA: 3s - loss: 0.0252
(467, 160, 320, 3)
19462/20000 [========================>.] - ETA: 2s - loss: 0.0252
(450, 160, 320, 3)
19923/20000 [========================>.] - ETA: 0s - loss: 0.0251
(469, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00005: saving model to check-05-0.0108.hdf5
20379/20000 [==============================] - 89s - loss: 0.0251 - v
al_loss: 0.0108
```

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Epoch 7/15
(464, 160, 320, 3)
  455/20000 [..............................] - ETA: 97s - loss: 0.030
9(461, 160, 320, 3)
  916/20000 [>.............................] - ETA: 81s - loss: 0.032
5(459, 160, 320, 3)
 1384/20000 [=>............................] - ETA: 83s - loss: 0.031
1(475, 160, 320, 3)
 1847/20000 [=>............................] - ETA: 76s - loss: 0.030
6(459, 160, 320, 3)
 2312/20000 [==>...........................] - ETA: 76s - loss: 0.029
2(459, 160, 320, 3)
 2789/20000 [===>..........................] - ETA: 72s - loss: 0.028
6(468, 160, 320, 3)
 3247/20000 [===>..........................] - ETA: 72s - loss: 0.027
7(469, 160, 320, 3)
 3714/20000 [====>.........................] - ETA: 68s - loss: 0.028
0(462, 160, 320, 3)
 4164/20000 [=====>........................] - ETA: 65s - loss: 0.026
9(455, 160, 320, 3)
 4633/20000 [=====>........................] - ETA: 62s - loss: 0.026
2(473, 160, 320, 3)
 5097/20000 [======>.......................] - ETA: 61s - loss: 0.025
8(459, 160, 320, 3)
 5558/20000 [=======>......................] - ETA: 60s - loss: 0.025
3(459, 160, 320, 3)
 6017/20000 [========>.....................] - ETA: 58s - loss: 0.025
2(460, 160, 320, 3)
 6492/20000 [========>.....................] - ETA: 55s - loss: 0.025
1(462, 160, 320, 3)
 6951/20000 [=========>....................] - ETA: 54s - loss: 0.025
0(466, 160, 320, 3)
 7410/20000 [==========>...................] - ETA: 51s - loss: 0.025
0(460, 160, 320, 3)
 7878/20000 [==========>...................] - ETA: 50s - loss: 0.025
0(455, 160, 320, 3)
 8347/20000 [===========>..................] - ETA: 48s - loss: 0.025
2(461, 160, 320, 3)
 8809/20000 [============>.................] - ETA: 46s - loss: 0.024
9(465, 160, 320, 3)
 9264/20000 [============>.................] - ETA: 44s - loss: 0.025
0(460, 160, 320, 3)
 9737/20000 [=============>................] - ETA: 42s - loss: 0.025
0(454, 160, 320, 3)
10196/20000 [==============>...............] - ETA: 40s - loss: 0.025
3(458, 160, 320, 3)
10655/20000 [==============>...............] - ETA: 39s - loss: 0.025
3(454, 160, 320, 3)
11115/20000 [===============>..............] - ETA: 36s - loss: 0.025
7(465, 160, 320, 3)
11577/20000 [================>.............] - ETA: 35s - loss: 0.025
8(458, 160, 320, 3)
12043/20000 [=================>............] - ETA: 33s - loss: 0.025
6(100, 160, 320, 3)
12503/20000 [=================>............] - ETA: 31s - loss: 0.025
3(464, 160, 320, 3)
12958/20000 [==================>...........] - ETA: 29s - loss: 0.025
```

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2(450, 160, 320, 3)
13419/20000 [===================>.........] - ETA: 27s - loss: 0.025
6(447, 160, 320, 3)
13884/20000 [===================>.........] - ETA: 25s - loss: 0.025
5(467, 160, 320, 3)
14344/20000 [====================>........] - ETA: 23s - loss: 0.025
4(468, 160, 320, 3)
14798/20000 [====================>........] - ETA: 21s - loss: 0.025
3(461, 160, 320, 3)
15256/20000 [====================>........] - ETA: 19s - loss: 0.025
2(460, 160, 320, 3)
15710/20000 [=====================>.......] - ETA: 17s - loss: 0.025
3(468, 160, 320, 3)
16175/20000 [=====================>......] - ETA: 15s - loss: 0.025
4(468, 160, 320, 3)
16733/20000 [======================>.....] - ETA: 13s - loss: 0.025
6(465, 160, 320, 3)
(457, 160, 320, 3)
17197/20000 [======================>.....] - ETA: 11s - loss: 0.025
4(460, 160, 320, 3)
17647/20000 [======================>....] - ETA: 9s - loss: 0.0254
 (464, 160, 320, 3)
18094/20000 [=======================>...] - ETA: 7s - loss: 0.0253
(459, 160, 320, 3)
18561/20000 [=======================>...] - ETA: 5s - loss: 0.0252
(460, 160, 320, 3)
19029/20000 [========================>..] - ETA: 4s - loss: 0.0251
(457, 160, 320, 3)
19490/20000 [========================>.] - ETA: 2s - loss: 0.0251
(463, 160, 320, 3)
19950/20000 [========================>.] - ETA: 0s - loss: 0.0250
(465, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
```

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(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00006: saving model to check-06-0.0110.hdf5
20418/20000 [==============================] - 91s - loss: 0.0250 - v
al_loss: 0.0110
Epoch 8/15
(467, 160, 320, 3)
  468/20000 [..............................] - ETA: 64s - loss: 0.023
8(456, 160, 320, 3)
  933/20000 [>.............................] - ETA: 78s - loss: 0.021
8(453, 160, 320, 3)
 1390/20000 [=>............................] - ETA: 71s - loss: 0.020
8(454, 160, 320, 3)
 1850/20000 [=>............................] - ETA: 74s - loss: 0.020
2(451, 160, 320, 3)
 2314/20000 [==>...........................] - ETA: 70s - loss: 0.020
4(464, 160, 320, 3)
 2773/20000 [===>..........................] - ETA: 71s - loss: 0.020
7(470, 160, 320, 3)
 3233/20000 [===>..........................] - ETA: 67s - loss: 0.021
1(465, 160, 320, 3)
 3690/20000 [====>.........................] - ETA: 67s - loss: 0.022
0(473, 160, 320, 3)
 4153/20000 [=====>........................] - ETA: 65s - loss: 0.022
2(458, 160, 320, 3)
 4618/20000 [=====>........................] - ETA: 62s - loss: 0.022
8(468, 160, 320, 3)
 5085/20000 [======>.......................] - ETA: 60s - loss: 0.023
7(460, 160, 320, 3)
 5541/20000 [=======>......................] - ETA: 58s - loss: 0.023
8(464, 160, 320, 3)
 5994/20000 [=======>......................] - ETA: 56s - loss: 0.023
4(460, 160, 320, 3)
 6448/20000 [========>.....................] - ETA: 54s - loss: 0.023
4(457, 160, 320, 3)
 6899/20000 [=========>.....................] - ETA: 52s - loss: 0.023
0(462, 160, 320, 3)
 7363/20000 [==========>....................] - ETA: 50s - loss: 0.023
1(457, 160, 320, 3)
 7833/20000 [==========>....................] - ETA: 47s - loss: 0.022
8(463, 160, 320, 3)
 8298/20000 [===========>...................] - ETA: 45s - loss: 0.022
7(468, 160, 320, 3)
 8771/20000 [============>..................] - ETA: 43s - loss: 0.022
7(459, 160, 320, 3)
 9229/20000 [============>..................] - ETA: 42s - loss: 0.022
9(446, 160, 320, 3)
 9697/20000 [=============>.................] - ETA: 40s - loss: 0.023
0(455, 160, 320, 3)
10157/20000 [==============>................] - ETA: 38s - loss: 0.023
3(468, 160, 320, 3)
10621/20000 [==============>................] - ETA: 36s - loss: 0.023
2(454, 160, 320, 3)
11081/20000 [===============>..............] - ETA: 34s - loss: 0.023
2(452, 160, 320, 3)
11538/20000 [================>.............] - ETA: 32s - loss: 0.023
1(476, 160, 320, 3)
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12000/20000 [=================>............] - ETA: 30s - loss: 0.023
2(451, 160, 320, 3)
12457/20000 [=================>............] - ETA: 29s - loss: 0.023
5(458, 160, 320, 3)
12920/20000 [==================>...........] - ETA: 27s - loss: 0.023
5(451, 160, 320, 3)
13388/20000 [==================>...........] - ETA: 25s - loss: 0.023
4(456, 160, 320, 3)
13847/20000 [===================>..........] - ETA: 24s - loss: 0.023
7(465, 160, 320, 3)
14293/20000 [===================>..........] - ETA: 22s - loss: 0.023
6(475, 160, 320, 3)
14748/20000 [====================>.........] - ETA: 20s - loss: 0.023
5(99, 160, 320, 3)
15216/20000 [====================>.........] - ETA: 18s - loss: 0.023
3(454, 160, 320, 3)
15670/20000 [=====================>........] - ETA: 17s - loss: 0.023
3(459, 160, 320, 3)
16122/20000 [=====================>........] - ETA: 15s - loss: 0.023
4(457, 160, 320, 3)
16598/20000 [======================>.......] - ETA: 13s - loss: 0.023
5(463, 160, 320, 3)
17049/20000 [======================>.......] - ETA: 11s - loss: 0.023
5(455, 160, 320, 3)
17507/20000 [=======================>......] - ETA: 9s - loss: 0.0236
 (457, 160, 320, 3)
17958/20000 [=======================>......] - ETA: 8s - loss: 0.0234
(465, 160, 320, 3)
18414/20000 [========================>.....] - ETA: 6s - loss: 0.0234
(454, 160, 320, 3)
18879/20000 [========================>.....] - ETA: 4s - loss: 0.0233
(459, 160, 320, 3)
19453/20000 [=========================>....] - ETA: 2s - loss: 0.0235
(453, 160, 320, 3)
(464, 160, 320, 3)
19907/20000 [=========================>....] - ETA: 0s - loss: 0.0234
(465, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
```

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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00007: saving model to check-07-0.0110.hdf5
20366/20000 [==============================] - 86s - loss: 0.0235 - v
al_loss: 0.0110
Epoch 9/15
(465, 160, 320, 3)
  457/20000 [..............................] - ETA: 70s - loss: 0.020
5(463, 160, 320, 3)
  920/20000 [>.............................] - ETA: 69s - loss: 0.020
0(466, 160, 320, 3)
 1375/20000 [=>............................] - ETA: 69s - loss: 0.020
4(457, 160, 320, 3)
 1832/20000 [=>............................] - ETA: 68s - loss: 0.021
3(453, 160, 320, 3)
 2297/20000 [==>...........................] - ETA: 66s - loss: 0.021
9(453, 160, 320, 3)
 2751/20000 [===>..........................] - ETA: 64s - loss: 0.021
5(467, 160, 320, 3)
 3210/20000 [===>..........................] - ETA: 62s - loss: 0.021
2(464, 160, 320, 3)
 3663/20000 [====>.........................] - ETA: 60s - loss: 0.021
5(467, 160, 320, 3)
 4127/20000 [=====>........................] - ETA: 59s - loss: 0.021
4(462, 160, 320, 3)
 4592/20000 [=====>........................] - ETA: 57s - loss: 0.021
4(459, 160, 320, 3)
 5057/20000 [======>.......................] - ETA: 55s - loss: 0.021
2(462, 160, 320, 3)
 5520/20000 [=======>......................] - ETA: 53s - loss: 0.021
0(463, 160, 320, 3)
 5986/20000 [=======>......................] - ETA: 51s - loss: 0.021
5(455, 160, 320, 3)
 6443/20000 [========>.....................] - ETA: 49s - loss: 0.021
7(463, 160, 320, 3)
 6896/20000 [=========>.....................] - ETA: 47s - loss: 0.021
9(457, 160, 320, 3)
 7349/20000 [==========>....................] - ETA: 46s - loss: 0.022
3(465, 160, 320, 3)
 7816/20000 [==========>....................] - ETA: 44s - loss: 0.022
2(466, 160, 320, 3)
 8280/20000 [===========>...................] - ETA: 42s - loss: 0.022
3(459, 160, 320, 3)
 8747/20000 [============>..................] - ETA: 41s - loss: 0.022
1(459, 160, 320, 3)
 9209/20000 [============>..................] - ETA: 39s - loss: 0.022
4(466, 160, 320, 3)
 9668/20000 [=============>.................] - ETA: 38s - loss: 0.022
3(459, 160, 320, 3)
10130/20000 [==============>................] - ETA: 36s - loss: 0.022
4(459, 160, 320, 3)
10593/20000 [==============>................] - ETA: 34s - loss: 0.022
```

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4(448, 160, 320, 3)
11048/20000 [===============>.............] - ETA: 33s - loss: 0.022
4(467, 160, 320, 3)
11511/20000 [================>............] - ETA: 31s - loss: 0.022
2(456, 160, 320, 3)
11968/20000 [================>............] - ETA: 29s - loss: 0.022
3(458, 160, 320, 3)
12433/20000 [=================>............] - ETA: 27s - loss: 0.022
3(458, 160, 320, 3)
12899/20000 [==================>...........] - ETA: 26s - loss: 0.022
4(466, 160, 320, 3)
13358/20000 [==================>...........] - ETA: 24s - loss: 0.022
5(459, 160, 320, 3)
13817/20000 [===================>..........] - ETA: 22s - loss: 0.022
4(458, 160, 320, 3)
14283/20000 [===================>..........] - ETA: 21s - loss: 0.022
4(474, 160, 320, 3)
14742/20000 [====================>.........] - ETA: 19s - loss: 0.022
5(459, 160, 320, 3)
15201/20000 [====================>.........] - ETA: 17s - loss: 0.022
5(464, 160, 320, 3)
15649/20000 [=====================>........] - ETA: 15s - loss: 0.022
6(464, 160, 320, 3)
16116/20000 [=====================>........] - ETA: 14s - loss: 0.022
5(462, 160, 320, 3)
16572/20000 [======================>.......] - ETA: 12s - loss: 0.022
7(469, 160, 320, 3)
17030/20000 [======================>.......] - ETA: 10s - loss: 0.022
8(464, 160, 320, 3)
17488/20000 [=======================>......] - ETA: 9s - loss: 0.0227
 (101, 160, 320, 3)
17954/20000 [=======================>......] - ETA: 7s - loss: 0.0226
(468, 160, 320, 3)
18413/20000 [========================>.....] - ETA: 5s - loss: 0.0226
(462, 160, 320, 3)
18871/20000 [========================>.....] - ETA: 4s - loss: 0.0228
(469, 160, 320, 3)
19345/20000 [=========================>....] - ETA: 2s - loss: 0.0227
(470, 160, 320, 3)
19804/20000 [=========================>....] - ETA: 0s - loss: 0.0227
(451, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00008: saving model to check-08-0.0109.hdf5
20268/20000 [==============================] - 79s - loss: 0.0226 - v
al_loss: 0.0109
Epoch 10/15
(461, 160, 320, 3)
  464/20000 [..............................] - ETA: 78s - loss: 0.019
5(465, 160, 320, 3)
  926/20000 [>.............................] - ETA: 73s - loss: 0.021
3(463, 160, 320, 3)
 1395/20000 [=>............................] - ETA: 70s - loss: 0.021
6(463, 160, 320, 3)
 1960/20000 [=>............................] - ETA: 67s - loss: 0.022
7(457, 160, 320, 3)
(470, 160, 320, 3)
 2428/20000 [==>...........................] - ETA: 66s - loss: 0.021
9(465, 160, 320, 3)
 2890/20000 [===>..........................] - ETA: 64s - loss: 0.022
8(454, 160, 320, 3)
 3359/20000 [====>.........................] - ETA: 62s - loss: 0.022
5(469, 160, 320, 3)
 3829/20000 [====>.........................] - ETA: 60s - loss: 0.021
9(462, 160, 320, 3)
 4280/20000 [=====>........................] - ETA: 58s - loss: 0.021
8(462, 160, 320, 3)
 4741/20000 [======>.......................] - ETA: 56s - loss: 0.021
5(453, 160, 320, 3)
 5206/20000 [======>.......................] - ETA: 54s - loss: 0.021
8(465, 160, 320, 3)
 5669/20000 [=======>......................] - ETA: 52s - loss: 0.022
1(465, 160, 320, 3)
 6132/20000 [========>.....................] - ETA: 50s - loss: 0.021
9(462, 160, 320, 3)
 6589/20000 [========>.....................] - ETA: 49s - loss: 0.021
6(454, 160, 320, 3)
 7059/20000 [=========>....................] - ETA: 47s - loss: 0.021
4(465, 160, 320, 3)
 7524/20000 [==========>...................] - ETA: 45s - loss: 0.021
3(460, 160, 320, 3)
 7978/20000 [==========>...................] - ETA: 44s - loss: 0.021
2(468, 160, 320, 3)
 8447/20000 [===========>..................] - ETA: 42s - loss: 0.021
5(454, 160, 320, 3)
 8909/20000 [============>.................] - ETA: 41s - loss: 0.021
7(471, 160, 320, 3)
 9371/20000 [=============>................] - ETA: 39s - loss: 0.022
0(454, 160, 320, 3)
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 9824/20000 [=============>.............] - ETA: 38s - loss: 0.021
9(463, 160, 320, 3)
10289/20000 [==============>.............] - ETA: 36s - loss: 0.022
4(464, 160, 320, 3)
10754/20000 [===============>.............] - ETA: 34s - loss: 0.022
4(453, 160, 320, 3)
11216/20000 [===============>.............] - ETA: 32s - loss: 0.022
6(482, 160, 320, 3)
11670/20000 [================>.............] - ETA: 31s - loss: 0.022
4(462, 160, 320, 3)
12135/20000 [=================>............] - ETA: 29s - loss: 0.022
4(464, 160, 320, 3)
12595/20000 [=================>............] - ETA: 27s - loss: 0.022
2(472, 160, 320, 3)
13063/20000 [==================>...........] - ETA: 25s - loss: 0.022
1(459, 160, 320, 3)
13517/20000 [===================>..........] - ETA: 24s - loss: 0.022
1(459, 160, 320, 3)
13988/20000 [===================>..........] - ETA: 22s - loss: 0.021
9(446, 160, 320, 3)
14442/20000 [====================>.........] - ETA: 20s - loss: 0.021
9(463, 160, 320, 3)
14905/20000 [=====================>........] - ETA: 18s - loss: 0.022
0(460, 160, 320, 3)
15369/20000 [======================>.......] - ETA: 17s - loss: 0.021
8(454, 160, 320, 3)
15822/20000 [======================>.......] - ETA: 15s - loss: 0.021
8(457, 160, 320, 3)
16304/20000 [=======================>......] - ETA: 13s - loss: 0.021
8(466, 160, 320, 3)
16766/20000 [========================>.....] - ETA: 11s - loss: 0.021
9(461, 160, 320, 3)
17230/20000 [========================>.....] - ETA: 10s - loss: 0.021
9(453, 160, 320, 3)
17702/20000 [=========================>....] - ETA: 8s - loss: 0.0221
 (455, 160, 320, 3)
18161/20000 [==========================>...] - ETA: 6s - loss: 0.0221
(462, 160, 320, 3)
18620/20000 [==========================>...] - ETA: 5s - loss: 0.0223
(450, 160, 320, 3)
19066/20000 [===========================>..] - ETA: 3s - loss: 0.0222
(452, 160, 320, 3)
19529/20000 [===========================>.] - ETA: 1s - loss: 0.0225
(466, 160, 320, 3)
19989/20000 [===========================>.] - ETA: 0s - loss: 0.0224
(463, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00009: saving model to check-09-0.0114.hdf5
20443/20000 [==============================] - 81s - loss: 0.0223 - v
al_loss: 0.0114
Epoch 11/15
(101, 160, 320, 3)
  457/20000 [..............................] - ETA: 68s - loss: 0.016
7(471, 160, 320, 3)
  923/20000 [>.............................] - ETA: 71s - loss: 0.019
5(462, 160, 320, 3)
 1384/20000 [=>............................] - ETA: 70s - loss: 0.022
8(472, 160, 320, 3)
 1837/20000 [=>............................] - ETA: 69s - loss: 0.022
2(468, 160, 320, 3)
 2292/20000 [==>...........................] - ETA: 67s - loss: 0.022
4(466, 160, 320, 3)
 2754/20000 [===>..........................] - ETA: 65s - loss: 0.022
4(462, 160, 320, 3)
 3204/20000 [===>..........................] - ETA: 63s - loss: 0.022
1(452, 160, 320, 3)
 3656/20000 [====>.........................] - ETA: 61s - loss: 0.021
9(456, 160, 320, 3)
 4122/20000 [=====>........................] - ETA: 59s - loss: 0.022
1(452, 160, 320, 3)
 4686/20000 [======>.......................] - ETA: 56s - loss: 0.022
9(460, 160, 320, 3)
(456, 160, 320, 3)
 5157/20000 [======>.......................] - ETA: 55s - loss: 0.022
6(463, 160, 320, 3)
 5619/20000 [=======>......................] - ETA: 53s - loss: 0.022
6(458, 160, 320, 3)
 6091/20000 [========>.....................] - ETA: 52s - loss: 0.022
8(465, 160, 320, 3)
 6559/20000 [========>.....................] - ETA: 50s - loss: 0.022
4(464, 160, 320, 3)
 7025/20000 [=========>....................] - ETA: 48s - loss: 0.022
2(470, 160, 320, 3)
 7487/20000 [==========>...................] - ETA: 47s - loss: 0.022
1(469, 160, 320, 3)
 7939/20000 [==========>...................] - ETA: 45s - loss: 0.022
0(457, 160, 320, 3)
 8395/20000 [===========>..................] - ETA: 43s - loss: 0.021
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8(457, 160, 320, 3)
 8847/20000 [============>.................] - ETA: 41s - loss: 0.021
7(469, 160, 320, 3)
 9307/20000 [============>.................] - ETA: 40s - loss: 0.021
6(466, 160, 320, 3)
 9763/20000 [=============>................] - ETA: 38s - loss: 0.021
5(458, 160, 320, 3)
10226/20000 [==============>...............] - ETA: 36s - loss: 0.021
5(455, 160, 320, 3)
10684/20000 [===============>..............] - ETA: 34s - loss: 0.021
5(465, 160, 320, 3)
11149/20000 [===============>..............] - ETA: 32s - loss: 0.021
5(470, 160, 320, 3)
11613/20000 [================>.............] - ETA: 31s - loss: 0.021
6(462, 160, 320, 3)
12083/20000 [================>.............] - ETA: 29s - loss: 0.021
9(463, 160, 320, 3)
12552/20000 [=================>............] - ETA: 27s - loss: 0.021
9(461, 160, 320, 3)
13009/20000 [==================>...........] - ETA: 25s - loss: 0.022
0(447, 160, 320, 3)
13466/20000 [==================>...........] - ETA: 24s - loss: 0.022
0(471, 160, 320, 3)
13935/20000 [===================>..........] - ETA: 22s - loss: 0.022
0(456, 160, 320, 3)
14401/20000 [====================>.........] - ETA: 20s - loss: 0.021
8(459, 160, 320, 3)
14859/20000 [====================>.........] - ETA: 19s - loss: 0.021
9(464, 160, 320, 3)
15314/20000 [=====================>........] - ETA: 17s - loss: 0.021
6(470, 160, 320, 3)
15779/20000 [======================>.......] - ETA: 15s - loss: 0.021
5(460, 160, 320, 3)
16249/20000 [======================>.......] - ETA: 13s - loss: 0.021
5(457, 160, 320, 3)
16711/20000 [=======================>......] - ETA: 12s - loss: 0.021
4(455, 160, 320, 3)
17174/20000 [=======================>......] - ETA: 10s - loss: 0.021
4(454, 160, 320, 3)
17635/20000 [========================>.....] - ETA: 8s - loss: 0.0214
 (468, 160, 320, 3)
18082/20000 [========================>....] - ETA: 7s - loss: 0.0213
(469, 160, 320, 3)
18553/20000 [=========================>....] - ETA: 5s - loss: 0.0214
(463, 160, 320, 3)
19009/20000 [=========================>...] - ETA: 3s - loss: 0.0215
(463, 160, 320, 3)
19468/20000 [==========================>..] - ETA: 1s - loss: 0.0214
(473, 160, 320, 3)
19932/20000 [==========================>..] - ETA: 0s - loss: 0.0213
(454, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00010: saving model to check-10-0.0109.hdf5
20402/20000 [==============================] - 81s - loss: 0.0214 - v
al_loss: 0.0109
Epoch 12/15
(460, 160, 320, 3)
  460/20000 [..............................] - ETA: 74s - loss: 0.025
3(468, 160, 320, 3)
  917/20000 [>.............................] - ETA: 74s - loss: 0.026
8(459, 160, 320, 3)
 1372/20000 [=>............................] - ETA: 70s - loss: 0.025
1(469, 160, 320, 3)
 1826/20000 [=>............................] - ETA: 68s - loss: 0.026
1(460, 160, 320, 3)
 2294/20000 [==>...........................] - ETA: 66s - loss: 0.025
3(460, 160, 320, 3)
 2763/20000 [===>..........................] - ETA: 63s - loss: 0.024
3(101, 160, 320, 3)
 3226/20000 [===>..........................] - ETA: 61s - loss: 0.023
1(466, 160, 320, 3)
 3689/20000 [====>.........................] - ETA: 60s - loss: 0.022
9(462, 160, 320, 3)
 4162/20000 [=====>........................] - ETA: 59s - loss: 0.023
3(467, 160, 320, 3)
 4616/20000 [=====>........................] - ETA: 57s - loss: 0.022
8(466, 160, 320, 3)
 5076/20000 [======>.......................] - ETA: 56s - loss: 0.022
4(456, 160, 320, 3)
 5544/20000 [=======>......................] - ETA: 54s - loss: 0.022
1(457, 160, 320, 3)
 6003/20000 [========>.....................] - ETA: 52s - loss: 0.021
7(464, 160, 320, 3)
 6472/20000 [========>.....................] - ETA: 50s - loss: 0.021
5(470, 160, 320, 3)
 6932/20000 [=========>....................] - ETA: 48s - loss: 0.021
4(458, 160, 320, 3)
 7493/20000 [==========>...................] - ETA: 46s - loss: 0.021
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6(466, 160, 320, 3)
(460, 160, 320, 3)
 7959/20000 [==========>..................] - ETA: 45s - loss: 0.021
3(448, 160, 320, 3)
 8421/20000 [===========>.................] - ETA: 43s - loss: 0.021
2(461, 160, 320, 3)
 8888/20000 [============>................] - ETA: 41s - loss: 0.021
1(469, 160, 320, 3)
 9354/20000 [=============>................] - ETA: 39s - loss: 0.020
8(466, 160, 320, 3)
 9810/20000 [=============>................] - ETA: 37s - loss: 0.020
7(456, 160, 320, 3)
10267/20000 [==============>...............] - ETA: 36s - loss: 0.020
6(463, 160, 320, 3)
10731/20000 [===============>..............] - ETA: 34s - loss: 0.020
7(461, 160, 320, 3)
11201/20000 [===============>..............] - ETA: 32s - loss: 0.020
8(451, 160, 320, 3)
11659/20000 [================>.............] - ETA: 30s - loss: 0.020
7(453, 160, 320, 3)
12125/20000 [=================>............] - ETA: 28s - loss: 0.020
7(466, 160, 320, 3)
12585/20000 [=================>............] - ETA: 27s - loss: 0.020
5(464, 160, 320, 3)
13033/20000 [==================>...........] - ETA: 25s - loss: 0.020
5(450, 160, 320, 3)
13494/20000 [==================>...........] - ETA: 23s - loss: 0.020
4(463, 160, 320, 3)
13963/20000 [===================>..........] - ETA: 22s - loss: 0.020
4(473, 160, 320, 3)
14429/20000 [====================>.........] - ETA: 20s - loss: 0.020
4(457, 160, 320, 3)
14885/20000 [====================>.........] - ETA: 18s - loss: 0.020
6(450, 160, 320, 3)
15348/20000 [=====================>........] - ETA: 17s - loss: 0.020
6(468, 160, 320, 3)
15809/20000 [=====================>........] - ETA: 15s - loss: 0.020
8(466, 160, 320, 3)
16260/20000 [======================>.......] - ETA: 13s - loss: 0.020
8(448, 160, 320, 3)
16713/20000 [======================>.......] - ETA: 12s - loss: 0.020
8(457, 160, 320, 3)
17179/20000 [=======================>......] - ETA: 10s - loss: 0.020
8(455, 160, 320, 3)
17643/20000 [=======================>......] - ETA: 8s - loss: 0.0208
 (462, 160, 320, 3)
18093/20000 [========================>.....] - ETA: 7s - loss: 0.0207
(460, 160, 320, 3)
18556/20000 [========================>.....] - ETA: 5s - loss: 0.0206
(463, 160, 320, 3)
19029/20000 [=========================>....] - ETA: 3s - loss: 0.0206
(458, 160, 320, 3)
19486/20000 [=========================>....] - ETA: 1s - loss: 0.0205
(456, 160, 320, 3)
19936/20000 [==========================>...] - ETA: 0s - loss: 0.0204
(461, 160, 320, 3)
(128, 160, 320, 3)
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(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00011: saving model to check-11-0.0105.hdf5
20404/20000 [==============================] - 81s - loss: 0.0205 - v
al_loss: 0.0105
Epoch 13/15
(463, 160, 320, 3)
  466/20000 [..............................] - ETA: 70s - loss: 0.019
4(464, 160, 320, 3)
  914/20000 [>.............................] - ETA: 71s - loss: 0.021
7(467, 160, 320, 3)
 1371/20000 [=>............................] - ETA: 71s - loss: 0.021
1(473, 160, 320, 3)
 1826/20000 [=>............................] - ETA: 69s - loss: 0.020
9(460, 160, 320, 3)
 2288/20000 [==>...........................] - ETA: 67s - loss: 0.020
5(457, 160, 320, 3)
 2748/20000 [===>..........................] - ETA: 65s - loss: 0.021
9(468, 160, 320, 3)
 3211/20000 [===>..........................] - ETA: 63s - loss: 0.022
3(458, 160, 320, 3)
 3669/20000 [====>.........................] - ETA: 61s - loss: 0.022
6(460, 160, 320, 3)
 4125/20000 [=====>........................] - ETA: 60s - loss: 0.021
9(465, 160, 320, 3)
 4586/20000 [=====>........................] - ETA: 58s - loss: 0.022
6(465, 160, 320, 3)
 5049/20000 [======>.......................] - ETA: 57s - loss: 0.022
7(465, 160, 320, 3)
 5513/20000 [=======>......................] - ETA: 55s - loss: 0.022
3(101, 160, 320, 3)
 5980/20000 [=======>......................] - ETA: 52s - loss: 0.021
6(457, 160, 320, 3)
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 6453/20000 [========>.....................] - ETA: 50s - loss: 0.021
6(464, 160, 320, 3)
 6913/20000 [=========>....................] - ETA: 48s - loss: 0.021
9(467, 160, 320, 3)
 7370/20000 [==========>...................] - ETA: 47s - loss: 0.021
8(452, 160, 320, 3)
 7838/20000 [==========>...................] - ETA: 45s - loss: 0.021
7(454, 160, 320, 3)
 8296/20000 [===========>..................] - ETA: 43s - loss: 0.021
6(447, 160, 320, 3)
 8756/20000 [============>.................] - ETA: 42s - loss: 0.021
4(468, 160, 320, 3)
 9221/20000 [============>.................] - ETA: 40s - loss: 0.021
3(457, 160, 320, 3)
 9686/20000 [=============>................] - ETA: 38s - loss: 0.021
3(458, 160, 320, 3)
10252/20000 [==============>...............] - ETA: 36s - loss: 0.021
8(461, 160, 320, 3)
(482, 160, 320, 3)
10709/20000 [==============>...............] - ETA: 34s - loss: 0.021
7(458, 160, 320, 3)
11173/20000 [===============>..............] - ETA: 33s - loss: 0.021
7(451, 160, 320, 3)
11640/20000 [================>.............] - ETA: 31s - loss: 0.021
6(457, 160, 320, 3)
12092/20000 [=================>............] - ETA: 29s - loss: 0.021
5(468, 160, 320, 3)
12546/20000 [=================>............] - ETA: 28s - loss: 0.021
4(458, 160, 320, 3)
12993/20000 [==================>...........] - ETA: 26s - loss: 0.021
3(465, 160, 320, 3)
13461/20000 [==================>...........] - ETA: 24s - loss: 0.021
3(460, 160, 320, 3)
13918/20000 [===================>..........] - ETA: 22s - loss: 0.021
3(456, 160, 320, 3)
14376/20000 [===================>..........] - ETA: 21s - loss: 0.021
2(467, 160, 320, 3)
14837/20000 [====================>.........] - ETA: 19s - loss: 0.021
2(465, 160, 320, 3)
15319/20000 [====================>.........] - ETA: 17s - loss: 0.021
1(449, 160, 320, 3)
15777/20000 [=====================>........] - ETA: 15s - loss: 0.021
0(464, 160, 320, 3)
16228/20000 [======================>.......] - ETA: 14s - loss: 0.021
0(463, 160, 320, 3)
16685/20000 [======================>.......] - ETA: 12s - loss: 0.020
9(461, 160, 320, 3)
17153/20000 [=======================>......] - ETA: 10s - loss: 0.021
0(444, 160, 320, 3)
17611/20000 [=======================>......] - ETA: 9s - loss: 0.0212
 (457, 160, 320, 3)
18076/20000 [========================>.....] - ETA: 7s - loss: 0.0212
(450, 160, 320, 3)
18536/20000 [========================>.....] - ETA: 5s - loss: 0.0213
(460, 160, 320, 3)
18992/20000 [=========================>....] - ETA: 3s - loss: 0.0214
(448, 160, 320, 3)
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19459/20000 [============================>.] - ETA: 2s - loss: 0.0215
(459, 160, 320, 3)
19924/20000 [============================>.] - ETA: 0s - loss: 0.0214
(459, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
Epoch 00012: saving model to check-12-0.0102.hdf5
20373/20000 [==============================] - 82s - loss: 0.0214 - v
al_loss: 0.0102
Epoch 14/15
(465, 160, 320, 3)
  464/20000 [..............................] - ETA: 72s - loss: 0.014
1(463, 160, 320, 3)
  927/20000 [>.............................] - ETA: 69s - loss: 0.016
6(457, 160, 320, 3)
 1388/20000 [=>............................] - ETA: 69s - loss: 0.017
6(456, 160, 320, 3)
 1832/20000 [=>............................] - ETA: 68s - loss: 0.017
4(472, 160, 320, 3)
 2289/20000 [==>...........................] - ETA: 67s - loss: 0.017
0(468, 160, 320, 3)
 2739/20000 [===>..........................] - ETA: 65s - loss: 0.017
6(465, 160, 320, 3)
 3199/20000 [===>..........................] - ETA: 63s - loss: 0.017
7(469, 160, 320, 3)
 3647/20000 [====>.........................] - ETA: 61s - loss: 0.018
3(468, 160, 320, 3)
 4106/20000 [=====>........................] - ETA: 59s - loss: 0.018
5(468, 160, 320, 3)
 4565/20000 [=====>........................] - ETA: 58s - loss: 0.018
9(446, 160, 320, 3)
 5030/20000 [======>.......................] - ETA: 56s - loss: 0.018
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8(453, 160, 320, 3)
 5493/20000 [=======>......................] - ETA: 54s - loss: 0.019
5(453, 160, 320, 3)
 5950/20000 [=======>......................] - ETA: 53s - loss: 0.019
6(461, 160, 320, 3)
 6406/20000 [========>.....................] - ETA: 51s - loss: 0.019
9(468, 160, 320, 3)
 6878/20000 [=========>.....................] - ETA: 49s - loss: 0.019
8(471, 160, 320, 3)
 7346/20000 [==========>....................] - ETA: 47s - loss: 0.020
5(464, 160, 320, 3)
 7811/20000 [==========>....................] - ETA: 45s - loss: 0.020
6(465, 160, 320, 3)
 8280/20000 [===========>...................] - ETA: 43s - loss: 0.020
4(103, 160, 320, 3)
 8748/20000 [============>..................] - ETA: 41s - loss: 0.020
0(456, 160, 320, 3)
 9216/20000 [============>..................] - ETA: 39s - loss: 0.020
2(460, 160, 320, 3)
 9662/20000 [=============>.................] - ETA: 37s - loss: 0.020
6(459, 160, 320, 3)
10115/20000 [==============>................] - ETA: 36s - loss: 0.020
6(453, 160, 320, 3)
10568/20000 [==============>................] - ETA: 34s - loss: 0.020
5(454, 160, 320, 3)
11029/20000 [===============>..............] - ETA: 33s - loss: 0.020
4(473, 160, 320, 3)
11497/20000 [================>.............] - ETA: 31s - loss: 0.020
4(466, 160, 320, 3)
11968/20000 [================>.............] - ETA: 29s - loss: 0.020
5(466, 160, 320, 3)
12432/20000 [=================>............] - ETA: 28s - loss: 0.020
6(454, 160, 320, 3)
13000/20000 [==================>...........] - ETA: 26s - loss: 0.020
8(448, 160, 320, 3)
(462, 160, 320, 3)
13456/20000 [===================>..........] - ETA: 24s - loss: 0.020
7(465, 160, 320, 3)
13916/20000 [===================>..........] - ETA: 22s - loss: 0.020
8(473, 160, 320, 3)
14375/20000 [====================>.........] - ETA: 20s - loss: 0.020
8(459, 160, 320, 3)
14828/20000 [=====================>........] - ETA: 19s - loss: 0.020
6(464, 160, 320, 3)
15282/20000 [=====================>........] - ETA: 17s - loss: 0.020
6(455, 160, 320, 3)
15755/20000 [======================>.......] - ETA: 15s - loss: 0.020
7(459, 160, 320, 3)
16221/20000 [======================>.......] - ETA: 14s - loss: 0.020
7(465, 160, 320, 3)
16687/20000 [=======================>.....] - ETA: 12s - loss: 0.020
8(457, 160, 320, 3)
17141/20000 [=======================>.....] - ETA: 10s - loss: 0.020
9(463, 160, 320, 3)
17589/20000 [========================>....] - ETA: 9s - loss: 0.0209
 (460, 160, 320, 3)
18051/20000 [========================>...] - ETA: 7s - loss: 0.0208
```

```
(458, 160, 320, 3)
18516/20000 [==========================>...] - ETA: 5s - loss: 0.0207
(461, 160, 320, 3)
18989/20000 [==========================>..] - ETA: 3s - loss: 0.0206
(462, 160, 320, 3)
19448/20000 [==========================>.] - ETA: 2s - loss: 0.0205
(454, 160, 320, 3)
19912/20000 [==========================>.] - ETA: 0s - loss: 0.0206
(464, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00013: saving model to check-13-0.0103.hdf5
20367/20000 [==============================] - 83s - loss: 0.0208 - v
al_loss: 0.0103
Epoch 15/15
(454, 160, 320, 3)
  459/20000 [..............................] - ETA: 75s - loss: 0.021
1(468, 160, 320, 3)
  924/20000 [>.............................] - ETA: 73s - loss: 0.022
9(460, 160, 320, 3)
 1381/20000 [=>............................] - ETA: 71s - loss: 0.022
2(461, 160, 320, 3)
 1844/20000 [=>............................] - ETA: 68s - loss: 0.022
8(467, 160, 320, 3)
 2304/20000 [==>...........................] - ETA: 65s - loss: 0.021
8(464, 160, 320, 3)
 2762/20000 [===>..........................] - ETA: 63s - loss: 0.022
1(467, 160, 320, 3)
 3223/20000 [===>..........................] - ETA: 61s - loss: 0.020
9(459, 160, 320, 3)
 3685/20000 [====>.........................] - ETA: 59s - loss: 0.020
6(467, 160, 320, 3)
```

```
 4139/20000 [=====>.......................] - ETA: 58s - loss: 0.020
6(467, 160, 320, 3)
 4603/20000 [=====>.......................] - ETA: 57s - loss: 0.020
3(465, 160, 320, 3)
 5057/20000 [======>......................] - ETA: 55s - loss: 0.020
2(468, 160, 320, 3)
 5525/20000 [=======>.....................] - ETA: 53s - loss: 0.020
5(469, 160, 320, 3)
 5985/20000 [=======>.....................] - ETA: 51s - loss: 0.020
4(461, 160, 320, 3)
 6446/20000 [========>....................] - ETA: 50s - loss: 0.020
5(456, 160, 320, 3)
 6913/20000 [=========>....................] - ETA: 48s - loss: 0.020
4(457, 160, 320, 3)
 7377/20000 [==========>...................] - ETA: 46s - loss: 0.020
4(457, 160, 320, 3)
 7844/20000 [==========>...................] - ETA: 45s - loss: 0.020
3(469, 160, 320, 3)
 8303/20000 [===========>..................] - ETA: 43s - loss: 0.020
7(452, 160, 320, 3)
 8770/20000 [============>.................] - ETA: 41s - loss: 0.020
7(466, 160, 320, 3)
 9237/20000 [============>.................] - ETA: 40s - loss: 0.021
0(458, 160, 320, 3)
 9702/20000 [=============>................] - ETA: 38s - loss: 0.020
9(457, 160, 320, 3)
10170/20000 [==============>...............] - ETA: 36s - loss: 0.021
4(445, 160, 320, 3)
10639/20000 [==============>...............] - ETA: 35s - loss: 0.021
2(459, 160, 320, 3)
11100/20000 [===============>..............] - ETA: 33s - loss: 0.021
1(106, 160, 320, 3)
11556/20000 [================>.............] - ETA: 31s - loss: 0.020
8(469, 160, 320, 3)
12013/20000 [=================>............] - ETA: 29s - loss: 0.020
8(455, 160, 320, 3)
12470/20000 [=================>............] - ETA: 28s - loss: 0.021
0(445, 160, 320, 3)
12939/20000 [==================>...........] - ETA: 26s - loss: 0.021
0(451, 160, 320, 3)
13391/20000 [===================>..........] - ETA: 24s - loss: 0.020
9(465, 160, 320, 3)
13857/20000 [===================>..........] - ETA: 23s - loss: 0.020
8(465, 160, 320, 3)
14315/20000 [====================>.........] - ETA: 21s - loss: 0.020
7(449, 160, 320, 3)
14772/20000 [=====================>........] - ETA: 19s - loss: 0.020
7(473, 160, 320, 3)
15217/20000 [=====================>........] - ETA: 18s - loss: 0.020
6(456, 160, 320, 3)
15782/20000 [======================>.......] - ETA: 15s - loss: 0.020
9(467, 160, 320, 3)
(456, 160, 320, 3)
16251/20000 [=======================>......] - ETA: 14s - loss: 0.020
7(465, 160, 320, 3)
16706/20000 [========================>.....] - ETA: 12s - loss: 0.020
8(462, 160, 320, 3)
```

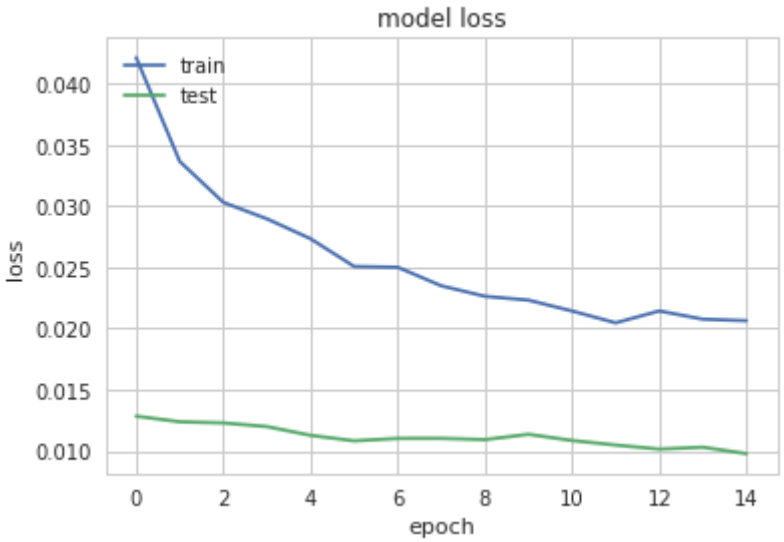
```
17151/20000 [========================>.....] - ETA: 10s - loss: 0.020
8(465, 160, 320, 3)
17602/20000 [========================>....] - ETA: 9s - loss: 0.0207
 (462, 160, 320, 3)
18067/20000 [=========================>...] - ETA: 7s - loss: 0.0207
(466, 160, 320, 3)
18532/20000 [=========================>...] - ETA: 5s - loss: 0.0206
(456, 160, 320, 3)
18981/20000 [==========================>..] - ETA: 3s - loss: 0.0207
(463, 160, 320, 3)
19454/20000 [==========================>.] - ETA: 2s - loss: 0.0207
(462, 160, 320, 3)
19910/20000 [==========================>.] - ETA: 0s - loss: 0.0207
(464, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00014: saving model to check-14-0.0098.hdf5
20377/20000 [==============================] - 82s - loss: 0.0206 - v
al_loss: 0.0098
```

In [171]:
```
#Plot losses
import matplotlib.pyplot as plt

print(history_object.history.keys())
plt.plot(history_object.history['loss'])
plt.plot(history_object.history['val_loss'])

plt.title('model loss')
plt.ylabel('loss')
plt.xlabel('epoch')
plt.legend(['train', 'test'], loc='upper left')
plt.show()
```

```
dict_keys(['loss', 'val_loss'])
```



I saw that the validation score leveled off at around epoch 15, suggesting that the model was overfitting after that point, and testing epochs 10-20 found that epoch 15 performed the best (getting to the turn after the bridge).

In [173]:
```
#Save model
from keras.models import model_from_json

# go one level up to save final model
model_json = model.to_json()
with open("model_final.json", "w") as json_file:
    json_file.write(model_json)


model.save("model_final.h5")
print("Saved model to disk")

print(model.summary())
# go one level up to save final model for simulator driver.py
os.path.dirname(os.path.dirname(cwd))
model.save("model_final.h5")
```

```
Saved model to disk
_________________________________________________________________
Layer (type)                 Output Shape              Param #
Connected to
=================================================================
zeropadding2d_8 (ZeroPadding2D)  (None, 162, 322, 3)   0
zeropadding2d_input_8[0][0]
_________________________________________________________________
cropping2d_8 (Cropping2D)    (None, 82, 322, 3)    0
zeropadding2d_8[0][0]
_________________________________________________________________
lambda_12 (Lambda)           (None, 64, 64, 3)     0
cropping2d_8[0][0]
_________________________________________________________________
color_conv (Convolution2D)   (None, 64, 64, 3)     12
lambda_12[0][0]
_________________________________________________________________
conv1 (Convolution2D)        (None, 32, 32, 32)    896
color_conv[0][0]
_________________________________________________________________
activation_22 (Activation)   (None, 32, 32, 32)    0
conv1[0][0]
_________________________________________________________________
pool1 (MaxPooling2D)         (None, 31, 31, 32)    0
activation_22[0][0]
_________________________________________________________________
conv2 (Convolution2D)        (None, 16, 16, 64)    18496
pool1[0][0]
_________________________________________________________________
relu2 (Activation)           (None, 16, 16, 64)    0
conv2[0][0]
_________________________________________________________________
pool2 (MaxPooling2D)         (None, 8, 8, 64)      0
relu2[0][0]
_________________________________________________________________
conv3 (Convolution2D)        (None, 8, 8, 128)     73856
pool2[0][0]
_________________________________________________________________
activation_23 (Activation)   (None, 8, 8, 128)     0
conv3[0][0]
_________________________________________________________________
pool3 (MaxPooling2D)         (None, 4, 4, 128)     0
activation_23[0][0]
```

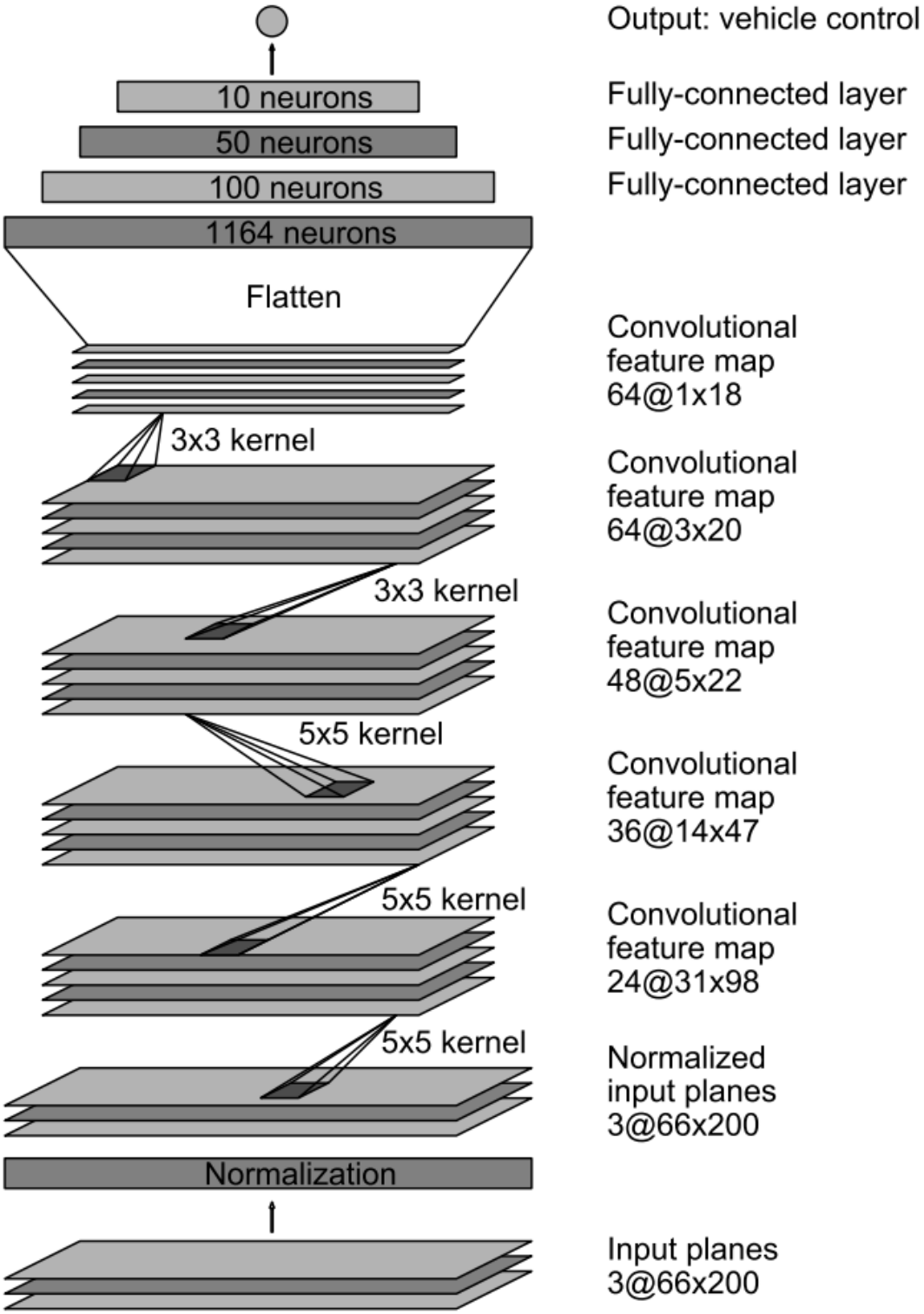
```
____________________________________________________________________________
____________________________________
flatten_8 (Flatten)              (None, 2048)          0           po
ol3[0][0]
____________________________________________________________________________
____________________________________
dropout_15 (Dropout)             (None, 2048)          0           fl
atten_8[0][0]
____________________________________________________________________________
____________________________________
dense1 (Dense)                   (None, 128)           262272      dr
opout_15[0][0]
____________________________________________________________________________
____________________________________
activation_24 (Activation)       (None, 128)           0           de
nse1[0][0]
____________________________________________________________________________
____________________________________
dropout_16 (Dropout)             (None, 128)           0           ac
tivation_24[0][0]
____________________________________________________________________________
____________________________________
dense2 (Dense)                   (None, 128)           16512       dr
opout_16[0][0]
____________________________________________________________________________
____________________________________
output (Dense)                   (None, 1)             129         de
nse2[0][0]
==============================================================================
================================
Total params: 372,173
Trainable params: 372,173
Non-trainable params: 0
____________________________________________________________________________
____________________________________
None
```

In [4]:
```
import imageio
```

In [5]:
```
imageio.plugins.ffmpeg.download()
```

Above approch causes to the car to drive on to dirt just after crossing the bridge. Two approach i think is may be usefull first to add more data corresponding to non staright driving as data is skewed towards driving car in staring line. Second better architecture like Nvidia driving is usefull.

Nvidia architecture just added max pooling layer for faster convergence.


Output: vehicle control
10 neurons
Fully-connected layer
50 neurons
Fully-connected layer
100 neurons
Fully-connected layer
1164 neurons
Flatten
Convolutional feature map 64@1x18
3x3 kernel
Convolutional feature map 64@3x20
3x3 kernel
Convolutional feature map 48@5x22
5x5 kernel
Convolutional feature map 36@14x47
5x5 kernel
Convolutional feature map 24@31x98
5x5 kernel
Normalized input planes 3@66x200
Normalization
Input planes 3@66x200

In [14]:
```
model = Sequential()
model.add(ZeroPadding2D((1, 1), input_shape=(row, col, ch)))
# Crop pixels from top and bottom of image
model.add(Cropping2D(cropping=((60, 20), (0, 0))))

# Resise data within the neural network
model.add(Lambda(resize_normalize))

model.add(Convolution2D(24, 5, 5, border_mode='same', subsample=(2,
2)))
model.add(Activation('relu',name='relu1'))
model.add(MaxPooling2D(pool_size=(2, 2), strides=(1, 1)))
model.add(Convolution2D(36, 5, 5, border_mode='same', subsample=(2,
2)))
model.add(Activation('relu',name='relu2'))
model.add(MaxPooling2D(pool_size=(2, 2), strides=(1, 1)))
model.add(Convolution2D(48, 5, 5, border_mode='same', subsample=(2,
2)))
model.add(Activation('relu',name='relu3'))
model.add(MaxPooling2D(pool_size=(2, 2), strides=(1, 1)))
model.add(Convolution2D(64, 3, 3, border_mode='same', subsample=(1,
1)))
model.add(Activation('relu',name='relu4'))
model.add(MaxPooling2D(pool_size=(2, 2), strides=(1, 1)))
model.add(Convolution2D(64, 3, 3, border_mode='same', subsample=(1,
1)))
model.add(Activation('relu',name='relu5'))
model.add(MaxPooling2D(pool_size=(2, 2), strides=(1, 1)))
model.add(Flatten())
model.add(Dense(1164))
model.add(Activation('relu',name='relu6'))
model.add(Dense(100))
model.add(Activation('relu',name='relu7'))
model.add(Dense(50))
model.add(Activation('relu',name='relu8'))
model.add(Dense(10))
model.add(Activation('relu',name='relu9'))
model.add(Dense(1))
model.compile(optimizer=Adam(lr= 0.0001), loss="mse", )
```

In [15]:
```
print(model.summary())
```

```
____________________________________________________________________________
____________________________________
Layer (type)                     Output Shape          Param #     Co
nnected to
============================================================================
================================
zeropadding2d_2 (ZeroPadding2D)  (None, 162, 322, 3)   0           ze
ropadding2d_input_2[0][0]
____________________________________________________________________________
____________________________________
cropping2d_2 (Cropping2D)        (None, 82, 322, 3)    0           ze
ropadding2d_2[0][0]
____________________________________________________________________________
____________________________________
lambda_1 (Lambda)                (None, 64, 64, 3)     0           cr
opping2d_2[0][0]
____________________________________________________________________________
____________________________________
convolution2d_1 (Convolution2D)  (None, 32, 32, 24)    1824        la
mbda_1[0][0]
____________________________________________________________________________
____________________________________
relu1 (Activation)               (None, 32, 32, 24)    0           co
nvolution2d_1[0][0]
____________________________________________________________________________
____________________________________
maxpooling2d_1 (MaxPooling2D)    (None, 31, 31, 24)    0           re
lu1[0][0]
____________________________________________________________________________
____________________________________
convolution2d_2 (Convolution2D)  (None, 16, 16, 36)    21636       ma
xpooling2d_1[0][0]
____________________________________________________________________________
____________________________________
relu2 (Activation)               (None, 16, 16, 36)    0           co
nvolution2d_2[0][0]
____________________________________________________________________________
____________________________________
maxpooling2d_2 (MaxPooling2D)    (None, 15, 15, 36)    0           re
lu2[0][0]
____________________________________________________________________________
____________________________________
convolution2d_3 (Convolution2D)  (None, 8, 8, 48)      43248       ma
xpooling2d_2[0][0]
____________________________________________________________________________
____________________________________
relu3 (Activation)               (None, 8, 8, 48)      0           co
nvolution2d_3[0][0]
____________________________________________________________________________
____________________________________
maxpooling2d_3 (MaxPooling2D)    (None, 7, 7, 48)      0           re
lu3[0][0]
____________________________________________________________________________
____________________________________
convolution2d_4 (Convolution2D)  (None, 7, 7, 64)      27712       ma
xpooling2d_3[0][0]
____________________________________________________________________________
```

```
____________________________________
relu4 (Activation)                (None, 7, 7, 64)      0           co
nvolution2d_4[0][0]
____________________________________________________________________________________________
____________________________________
maxpooling2d_4 (MaxPooling2D)     (None, 6, 6, 64)      0           re
lu4[0][0]
____________________________________________________________________________________________
____________________________________
convolution2d_5 (Convolution2D)   (None, 6, 6, 64)      36928       ma
xpooling2d_4[0][0]
____________________________________________________________________________________________
____________________________________
relu5 (Activation)                (None, 6, 6, 64)      0           co
nvolution2d_5[0][0]
____________________________________________________________________________________________
____________________________________
maxpooling2d_5 (MaxPooling2D)     (None, 5, 5, 64)      0           re
lu5[0][0]
____________________________________________________________________________________________
____________________________________
flatten_1 (Flatten)               (None, 1600)          0           ma
xpooling2d_5[0][0]
____________________________________________________________________________________________
____________________________________
dense_1 (Dense)                   (None, 1164)          1863564     fl
atten_1[0][0]
____________________________________________________________________________________________
____________________________________
relu6 (Activation)                (None, 1164)          0           de
nse_1[0][0]
____________________________________________________________________________________________
____________________________________
dense_2 (Dense)                   (None, 100)           116500      re
lu6[0][0]
____________________________________________________________________________________________
____________________________________
relu7 (Activation)                (None, 100)           0           de
nse_2[0][0]
____________________________________________________________________________________________
____________________________________
dense_3 (Dense)                   (None, 50)            5050        re
lu7[0][0]
____________________________________________________________________________________________
____________________________________
relu8 (Activation)                (None, 50)            0           de
nse_3[0][0]
____________________________________________________________________________________________
____________________________________
dense_4 (Dense)                   (None, 10)            510         re
lu8[0][0]
____________________________________________________________________________________________
____________________________________
relu9 (Activation)                (None, 10)            0           de
nse_4[0][0]
____________________________________________________________________________________________
____________________________________
```

```
dense_5 (Dense)                  (None, 1)             11          re
lu9[0][0]
==================================================================
================================
Total params: 2,116,983
Trainable params: 2,116,983
Non-trainable params: 0
__________________________________________________________________
________________________________
None
```

In [16]:
```
#save every model using Keras checkpoint
from keras.callbacks import ModelCheckpoint
filepath="Nvidias-check-{epoch:02d}-{val_loss:.4f}.hdf5"
checkpoint = ModelCheckpoint(filepath= filepath, verbose=1, save_best
_only=False)
callbacks_list = [checkpoint]
```

In [18]:
```
nb_epoch = 8
samples_per_epoch = 2000
nb_val_samples = 2000
```

In [60]:
```
train_generator = train_generator(train_samples, batch_size=batch_siz
e)
validation_generator = valid_generator(validation_samples,
batch_size=batch_size)
```

In [58]:
```
history_object = model.fit_generator(train_generator, samples_per_epoch= samples_per_epoch,
                                     validation_data=validation_generator,
                                     nb_val_samples=nb_val_samples, nb_epoch=nb_epoch, verbose=1, callbacks=callbacks_list)
```

```
6428
Epoch 1/25
(470, 160, 320, 3)
(461, 160, 320, 3)
  470/20000 [..............................] - ETA: 125s - loss: 0.02
02(465, 160, 320, 3)
  931/20000 [>.............................] - ETA: 113s - loss: 0.01
99(469, 160, 320, 3)
 1396/20000 [=>............................] - ETA: 97s - loss: 0.018
9 (457, 160, 320, 3)
 1865/20000 [=>............................] - ETA: 96s - loss: 0.020
4(448, 160, 320, 3)
(457, 160, 320, 3)
 2322/20000 [==>...........................] - ETA: 89s - loss: 0.019
4(466, 160, 320, 3)
 2770/20000 [===>..........................] - ETA: 88s - loss: 0.019
0(468, 160, 320, 3)
 3227/20000 [===>..........................] - ETA: 83s - loss: 0.019
2(467, 160, 320, 3)
 3693/20000 [====>.........................] - ETA: 81s - loss: 0.019
4(456, 160, 320, 3)
 4161/20000 [=====>........................] - ETA: 80s - loss: 0.019
0(460, 160, 320, 3)
 4628/20000 [=====>........................] - ETA: 75s - loss: 0.019
2(476, 160, 320, 3)
 5084/20000 [======>.......................] - ETA: 74s - loss: 0.019
5(465, 160, 320, 3)
 5544/20000 [=======>......................] - ETA: 70s - loss: 0.019
5(454, 160, 320, 3)
 6020/20000 [========>.....................] - ETA: 68s - loss: 0.019
8(458, 160, 320, 3)
(462, 160, 320, 3)
 6485/20000 [========>.....................] - ETA: 65s - loss: 0.019
8(460, 160, 320, 3)
(467, 160, 320, 3)
 6939/20000 [=========>....................] - ETA: 64s - loss: 0.019
8(460, 160, 320, 3)
(452, 160, 320, 3)
 7397/20000 [==========>...................] - ETA: 62s - loss: 0.019
6(469, 160, 320, 3)
(464, 160, 320, 3)
 7859/20000 [==========>...................] - ETA: 59s - loss: 0.019
6(463, 160, 320, 3)
(457, 160, 320, 3)
 8319/20000 [===========>..................] - ETA: 57s - loss: 0.019
4(458, 160, 320, 3)
(462, 160, 320, 3)
 8786/20000 [============>.................] - ETA: 55s - loss: 0.019
3(472, 160, 320, 3)
(463, 160, 320, 3)
(454, 160, 320, 3)
 9246/20000 [============>.................] - ETA: 53s - loss: 0.019
1(470, 160, 320, 3)
 9698/20000 [=============>................] - ETA: 50s - loss: 0.019
0(458, 160, 320, 3)
10167/20000 [==============>...............] - ETA: 48s - loss: 0.018
8(455, 160, 320, 3)
```

```
10631/20000 [==============>..............] - ETA: 45s - loss: 0.019
1(454, 160, 320, 3)
11094/20000 [===============>.............] - ETA: 43s - loss: 0.019
2(466, 160, 320, 3)
11551/20000 [================>............] - ETA: 41s - loss: 0.019
5(461, 160, 320, 3)
12009/20000 [=================>............] - ETA: 39s - loss: 0.019
5(454, 160, 320, 3)
12471/20000 [=================>............] - ETA: 37s - loss: 0.019
5(474, 160, 320, 3)
12943/20000 [==================>...........] - ETA: 34s - loss: 0.019
6(465, 160, 320, 3)
13406/20000 [===================>..........] - ETA: 32s - loss: 0.019
5(461, 160, 320, 3)
13860/20000 [===================>..........] - ETA: 30s - loss: 0.019
5(463, 160, 320, 3)
14330/20000 [====================>.........] - ETA: 27s - loss: 0.019
8(461, 160, 320, 3)
14788/20000 [=====================>........] - ETA: 25s - loss: 0.019
9(457, 160, 320, 3)
15243/20000 [=====================>........] - ETA: 23s - loss: 0.019
8(459, 160, 320, 3)
15697/20000 [======================>.......] - ETA: 20s - loss: 0.019
7(462, 160, 320, 3)
16163/20000 [=======================>......] - ETA: 18s - loss: 0.019
8(455, 160, 320, 3)
16624/20000 [=======================>......] - ETA: 16s - loss: 0.019
8(459, 160, 320, 3)
17078/20000 [========================>.....] - ETA: 14s - loss: 0.019
7(463, 160, 320, 3)
17552/20000 [=========================>....] - ETA: 11s - loss: 0.019
6(475, 160, 320, 3)
18017/20000 [=========================>...] - ETA: 9s - loss: 0.0196
 (456, 160, 320, 3)
18478/20000 [==========================>...] - ETA: 7s - loss: 0.0197
(100, 160, 320, 3)
18941/20000 [==========================>..] - ETA: 5s - loss: 0.0198
(456, 160, 320, 3)
19402/20000 [===========================>.] - ETA: 2s - loss: 0.0198
(460, 160, 320, 3)
19859/20000 [===========================>.] - ETA: 0s - loss: 0.0198
(466, 160, 320, 3)

/media/ashutosh/unix-extra1/anaconda3/envs/carnd-term1/lib/python3.5/
site-packages/keras/engine/training.py:1569: UserWarning: Epoch compr
ised more than `samples_per_epoch` samples, which might affect learni
ng results. Set `samples_per_epoch` correctly to avoid this warning.
  warnings.warn('Epoch comprised more than '
```

```
/media/ashutosh/unix-extra1/udacity/udacitycCarND/Behavioral Cloning/
data/data
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00000: saving model to Nvidias-check-00-0.0116.hdf5
20318/20000 [==============================] - 102s - loss: 0.0198 -
 val_loss: 0.0116
Epoch 2/25
(457, 160, 320, 3)
  462/20000 [..............................] - ETA: 84s - loss: 0.023
6(464, 160, 320, 3)
  917/20000 [>.............................] - ETA: 82s - loss: 0.022
8(459, 160, 320, 3)
 1376/20000 [=>............................] - ETA: 79s - loss: 0.021
6(463, 160, 320, 3)
 1839/20000 [=>............................] - ETA: 77s - loss: 0.022
0(467, 160, 320, 3)
 2314/20000 [==>...........................] - ETA: 80s - loss: 0.021
0(448, 160, 320, 3)
 2870/20000 [===>..........................] - ETA: 77s - loss: 0.020
5(442, 160, 320, 3)
(455, 160, 320, 3)
 3326/20000 [===>..........................] - ETA: 77s - loss: 0.020
8(463, 160, 320, 3)
 3786/20000 [====>.........................] - ETA: 77s - loss: 0.020
6(461, 160, 320, 3)
 4252/20000 [=====>........................] - ETA: 73s - loss: 0.020
1(465, 160, 320, 3)
 4709/20000 [======>.......................] - ETA: 72s - loss: 0.020
2(455, 160, 320, 3)
 5173/20000 [======>.......................] - ETA: 69s - loss: 0.019
9(473, 160, 320, 3)
```

```
 5632/20000 [=======>......................] - ETA: 68s - loss: 0.019
6(456, 160, 320, 3)
 6095/20000 [========>.....................] - ETA: 65s - loss: 0.019
6(449, 160, 320, 3)
 6562/20000 [========>.....................] - ETA: 63s - loss: 0.019
6(457, 160, 320, 3)
 7010/20000 [=========>....................] - ETA: 62s - loss: 0.019
8(472, 160, 320, 3)
 7452/20000 [==========>...................] - ETA: 59s - loss: 0.019
8(460, 160, 320, 3)
 7907/20000 [==========>...................] - ETA: 58s - loss: 0.019
9(459, 160, 320, 3)
 8370/20000 [===========>..................] - ETA: 55s - loss: 0.019
8(451, 160, 320, 3)
 8831/20000 [============>.................] - ETA: 53s - loss: 0.019
9(459, 160, 320, 3)
 9296/20000 [============>.................] - ETA: 51s - loss: 0.019
9(468, 160, 320, 3)
 9751/20000 [=============>................] - ETA: 49s - loss: 0.019
8(450, 160, 320, 3)
10224/20000 [==============>...............] - ETA: 47s - loss: 0.019
8(465, 160, 320, 3)
10680/20000 [===============>..............] - ETA: 45s - loss: 0.019
8(456, 160, 320, 3)
11129/20000 [===============>..............] - ETA: 43s - loss: 0.019
6(465, 160, 320, 3)
11586/20000 [================>.............] - ETA: 40s - loss: 0.019
5(467, 160, 320, 3)
12058/20000 [=================>............] - ETA: 38s - loss: 0.019
4(464, 160, 320, 3)
12518/20000 [=================>............] - ETA: 36s - loss: 0.019
3(464, 160, 320, 3)
12977/20000 [==================>...........] - ETA: 34s - loss: 0.019
3(464, 160, 320, 3)
13428/20000 [==================>...........] - ETA: 31s - loss: 0.019
6(454, 160, 320, 3)
13887/20000 [==================>...........] - ETA: 29s - loss: 0.019
6(464, 160, 320, 3)
14355/20000 [===================>..........] - ETA: 27s - loss: 0.019
6(446, 160, 320, 3)
14805/20000 [====================>.........] - ETA: 25s - loss: 0.019
6(457, 160, 320, 3)
15270/20000 [====================>.........] - ETA: 22s - loss: 0.019
7(455, 160, 320, 3)
15726/20000 [=====================>........] - ETA: 20s - loss: 0.019
8(450, 160, 320, 3)
16191/20000 [======================>.......] - ETA: 18s - loss: 0.019
7(465, 160, 320, 3)
16658/20000 [======================>.......] - ETA: 16s - loss: 0.019
7(476, 160, 320, 3)
17122/20000 [=======================>......] - ETA: 13s - loss: 0.019
8(462, 160, 320, 3)
17586/20000 [=======================>......] - ETA: 11s - loss: 0.019
8(464, 160, 320, 3)
18050/20000 [========================>.....] - ETA: 9s - loss: 0.0196
 (457, 160, 320, 3)
18504/20000 [========================>.....] - ETA: 7s - loss: 0.0196
```

```
(462, 160, 320, 3)
18968/20000 [===========================>..] - ETA: 4s - loss: 0.0197
(466, 160, 320, 3)
19414/20000 [============================>.] - ETA: 2s - loss: 0.0196
(463, 160, 320, 3)
19871/20000 [============================>.] - ETA: 0s - loss: 0.0196
(456, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00001: saving model to Nvidias-check-01-0.0122.hdf5
20326/20000 [==============================] - 104s - loss: 0.0195 -
 val_loss: 0.0122
Epoch 3/25
(467, 160, 320, 3)
  450/20000 [..............................] - ETA: 76s - loss: 0.020
0(454, 160, 320, 3)
  915/20000 [>.............................] - ETA: 85s - loss: 0.021
2(100, 160, 320, 3)
 1391/20000 [=>............................] - ETA: 84s - loss: 0.020
9(456, 160, 320, 3)
 1853/20000 [=>............................] - ETA: 81s - loss: 0.021
3(463, 160, 320, 3)
 2317/20000 [==>...........................] - ETA: 77s - loss: 0.020
6(459, 160, 320, 3)
 2774/20000 [===>..........................] - ETA: 75s - loss: 0.021
3(471, 160, 320, 3)
 3236/20000 [===>..........................] - ETA: 73s - loss: 0.021
8(459, 160, 320, 3)
 3702/20000 [====>.........................] - ETA: 71s - loss: 0.022
2(455, 160, 320, 3)
 4165/20000 [=====>........................] - ETA: 69s - loss: 0.021
7(454, 160, 320, 3)
```

```
 4621/20000 [=====>.....................] - ETA: 67s - loss: 0.022
2(459, 160, 320, 3)
 5088/20000 [======>.....................] - ETA: 66s - loss: 0.021
6(459, 160, 320, 3)
 5642/20000 [=======>.....................] - ETA: 64s - loss: 0.021
5(463, 160, 320, 3)
(474, 160, 320, 3)
 6098/20000 [========>.....................] - ETA: 62s - loss: 0.021
4(456, 160, 320, 3)
 6561/20000 [========>.....................] - ETA: 60s - loss: 0.021
1(461, 160, 320, 3)
 7020/20000 [=========>.....................] - ETA: 58s - loss: 0.020
7(462, 160, 320, 3)
 7491/20000 [==========>.....................] - ETA: 55s - loss: 0.020
7(463, 160, 320, 3)
 7950/20000 [==========>.....................] - ETA: 53s - loss: 0.020
5(459, 160, 320, 3)
 8405/20000 [===========>.....................] - ETA: 51s - loss: 0.020
2(459, 160, 320, 3)
 8859/20000 [============>.....................] - ETA: 49s - loss: 0.020
1(463, 160, 320, 3)
 9318/20000 [============>.....................] - ETA: 46s - loss: 0.020
4(456, 160, 320, 3)
 9777/20000 [=============>.....................] - ETA: 44s - loss: 0.020
4(459, 160, 320, 3)
10240/20000 [==============>.....................] - ETA: 42s - loss: 0.020
3(461, 160, 320, 3)
10714/20000 [===============>.....................] - ETA: 40s - loss: 0.020
2(469, 160, 320, 3)
11170/20000 [===============>.....................] - ETA: 38s - loss: 0.020
4(460, 160, 320, 3)
11631/20000 [================>.....................] - ETA: 36s - loss: 0.020
3(455, 160, 320, 3)
12093/20000 [=================>.....................] - ETA: 34s - loss: 0.020
2(453, 160, 320, 3)
12556/20000 [=================>.....................] - ETA: 32s - loss: 0.020
1(454, 160, 320, 3)
13015/20000 [==================>.....................] - ETA: 30s - loss: 0.020
0(464, 160, 320, 3)
13474/20000 [===================>.....................] - ETA: 28s - loss: 0.020
0(464, 160, 320, 3)
13937/20000 [===================>.....................] - ETA: 26s - loss: 0.019
9(457, 160, 320, 3)
14393/20000 [====================>.....................] - ETA: 24s - loss: 0.019
9(466, 160, 320, 3)
14852/20000 [=====================>.....................] - ETA: 22s - loss: 0.019
8(467, 160, 320, 3)
15313/20000 [=====================>.....................] - ETA: 20s - loss: 0.019
7(470, 160, 320, 3)
15782/20000 [======================>.....................] - ETA: 18s - loss: 0.019
6(460, 160, 320, 3)
16242/20000 [=======================>.....................] - ETA: 16s - loss: 0.019
8(457, 160, 320, 3)
16697/20000 [========================>.....................] - ETA: 14s - loss: 0.019
8(461, 160, 320, 3)
17150/20000 [========================>.....................] - ETA: 12s - loss: 0.019
8(458, 160, 320, 3)
```

```
17604/20000 [=========================>....] - ETA: 10s - loss: 0.019
7(453, 160, 320, 3)
18068/20000 [=========================>...] - ETA: 8s - loss: 0.0198
 (463, 160, 320, 3)
18532/20000 [=========================>...] - ETA: 6s - loss: 0.0198
(456, 160, 320, 3)
18989/20000 [=========================>..] - ETA: 4s - loss: 0.0197
(460, 160, 320, 3)
19455/20000 [==========================>.] - ETA: 2s - loss: 0.0197
(461, 160, 320, 3)
19922/20000 [==========================>.] - ETA: 0s - loss: 0.0199
(453, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00002: saving model to Nvidias-check-02-0.0114.hdf5
20392/20000 [==============================] - 94s - loss: 0.0198 - v
al_loss: 0.0114
Epoch 4/25
(463, 160, 320, 3)
  460/20000 [..............................] - ETA: 83s - loss: 0.015
3(459, 160, 320, 3)
  917/20000 [>.............................] - ETA: 81s - loss: 0.015
8(473, 160, 320, 3)
 1378/20000 [=>............................] - ETA: 79s - loss: 0.019
5(451, 160, 320, 3)
 1836/20000 [=>............................] - ETA: 77s - loss: 0.018
9(466, 160, 320, 3)
 2289/20000 [==>...........................] - ETA: 75s - loss: 0.018
9(448, 160, 320, 3)
 2752/20000 [===>..........................] - ETA: 73s - loss: 0.018
5(460, 160, 320, 3)
 3208/20000 [===>..........................] - ETA: 71s - loss: 0.018
```

```
9(462, 160, 320, 3)
 3668/20000 [====>.......................] - ETA: 69s - loss: 0.019
2(98, 160, 320, 3)
 4129/20000 [=====>......................] - ETA: 66s - loss: 0.019
5(460, 160, 320, 3)
 4582/20000 [=====>......................] - ETA: 64s - loss: 0.019
5(462, 160, 320, 3)
 5045/20000 [======>.....................] - ETA: 61s - loss: 0.019
6(464, 160, 320, 3)
 5504/20000 [=======>.....................] - ETA: 61s - loss: 0.019
9(463, 160, 320, 3)
 5977/20000 [=======>.....................] - ETA: 58s - loss: 0.020
6(457, 160, 320, 3)
 6428/20000 [========>.....................] - ETA: 56s - loss: 0.020
9(452, 160, 320, 3)
 6894/20000 [=========>.....................] - ETA: 55s - loss: 0.020
9(469, 160, 320, 3)
 7342/20000 [==========>.....................] - ETA: 54s - loss: 0.021
2(464, 160, 320, 3)
 7802/20000 [==========>.....................] - ETA: 52s - loss: 0.020
9(475, 160, 320, 3)
 8362/20000 [===========>.....................] - ETA: 50s - loss: 0.020
7(464, 160, 320, 3)
(461, 160, 320, 3)
 8822/20000 [============>.....................] - ETA: 48s - loss: 0.020
8(458, 160, 320, 3)
 9284/20000 [============>.....................] - ETA: 47s - loss: 0.020
7(469, 160, 320, 3)
 9748/20000 [=============>.....................] - ETA: 44s - loss: 0.020
5(460, 160, 320, 3)
10211/20000 [==============>.....................] - ETA: 43s - loss: 0.020
4(466, 160, 320, 3)
10668/20000 [===============>.....................] - ETA: 41s - loss: 0.020
2(460, 160, 320, 3)
11120/20000 [===============>.....................] - ETA: 39s - loss: 0.020
1(459, 160, 320, 3)
11589/20000 [================>.....................] - ETA: 37s - loss: 0.020
1(451, 160, 320, 3)
12053/20000 [=================>.....................] - ETA: 35s - loss: 0.020
3(463, 160, 320, 3)
12528/20000 [=================>.....................] - ETA: 33s - loss: 0.020
3(464, 160, 320, 3)
12992/20000 [==================>.....................] - ETA: 31s - loss: 0.020
1(456, 160, 320, 3)
13453/20000 [===================>.....................] - ETA: 29s - loss: 0.020
1(454, 160, 320, 3)
13911/20000 [===================>.....................] - ETA: 27s - loss: 0.020
0(463, 160, 320, 3)
14380/20000 [====================>.....................] - ETA: 25s - loss: 0.020
0(461, 160, 320, 3)
14840/20000 [====================>.....................] - ETA: 22s - loss: 0.020
0(477, 160, 320, 3)
15306/20000 [=====================>.....................] - ETA: 21s - loss: 0.019
9(461, 160, 320, 3)
15766/20000 [======================>.....................] - ETA: 18s - loss: 0.019
9(458, 160, 320, 3)
16225/20000 [=======================>.....................] - ETA: 16s - loss: 0.019
```

```
9(465, 160, 320, 3)
16676/20000 [=======================>.....] - ETA: 14s - loss: 0.019
8(464, 160, 320, 3)
17139/20000 [=======================>.....] - ETA: 12s - loss: 0.019
7(463, 160, 320, 3)
17603/20000 [=======================>....] - ETA: 10s - loss: 0.019
6(467, 160, 320, 3)
18059/20000 [========================>...] - ETA: 8s - loss: 0.0196
 (471, 160, 320, 3)
18513/20000 [========================>...] - ETA: 6s - loss: 0.0195
(468, 160, 320, 3)
18976/20000 [========================>..] - ETA: 4s - loss: 0.0197
(455, 160, 320, 3)
19437/20000 [========================>.] - ETA: 2s - loss: 0.0197
(460, 160, 320, 3)
19914/20000 [========================>.] - ETA: 0s - loss: 0.0197
(457, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00003: saving model to Nvidias-check-03-0.0111.hdf5
20375/20000 [==============================] - 98s - loss: 0.0197 - v
al_loss: 0.0111
Epoch 5/25
(462, 160, 320, 3)
  458/20000 [..............................] - ETA: 97s - loss: 0.020
9(455, 160, 320, 3)
  923/20000 [>.............................] - ETA: 95s - loss: 0.021
2(461, 160, 320, 3)
 1387/20000 [=>............................] - ETA: 87s - loss: 0.019
6(457, 160, 320, 3)
 1850/20000 [=>............................] - ETA: 82s - loss: 0.019
2(451, 160, 320, 3)
```

```
 2317/20000 [==>............................] - ETA: 78s - loss: 0.020
2(469, 160, 320, 3)
 2788/20000 [===>...........................] - ETA: 75s - loss: 0.020
1(466, 160, 320, 3)
 3256/20000 [===>...........................] - ETA: 72s - loss: 0.019
6(470, 160, 320, 3)
 3711/20000 [====>..........................] - ETA: 70s - loss: 0.019
2(462, 160, 320, 3)
 4171/20000 [=====>.........................] - ETA: 68s - loss: 0.019
3(455, 160, 320, 3)
 4628/20000 [=====>.........................] - ETA: 66s - loss: 0.019
2(463, 160, 320, 3)
 5090/20000 [======>........................] - ETA: 64s - loss: 0.018
7(461, 160, 320, 3)
 5545/20000 [=======>.......................] - ETA: 62s - loss: 0.018
7(472, 160, 320, 3)
 6006/20000 [========>......................] - ETA: 60s - loss: 0.018
5(458, 160, 320, 3)
 6463/20000 [========>......................] - ETA: 58s - loss: 0.018
9(105, 160, 320, 3)
 6914/20000 [=========>.....................] - ETA: 56s - loss: 0.019
1(460, 160, 320, 3)
 7383/20000 [==========>....................] - ETA: 54s - loss: 0.019
2(461, 160, 320, 3)
 7849/20000 [==========>....................] - ETA: 52s - loss: 0.019
0(459, 160, 320, 3)
 8319/20000 [===========>...................] - ETA: 50s - loss: 0.019
3(460, 160, 320, 3)
 8781/20000 [============>..................] - ETA: 47s - loss: 0.020
0(457, 160, 320, 3)
 9236/20000 [============>..................] - ETA: 46s - loss: 0.020
1(451, 160, 320, 3)
 9699/20000 [=============>.................] - ETA: 44s - loss: 0.019
9(460, 160, 320, 3)
10160/20000 [==============>................] - ETA: 42s - loss: 0.020
1(463, 160, 320, 3)
10632/20000 [==============>................] - ETA: 39s - loss: 0.019
9(449, 160, 320, 3)
11195/20000 [===============>..............] - ETA: 37s - loss: 0.019
8(467, 160, 320, 3)
(470, 160, 320, 3)
11655/20000 [================>.............] - ETA: 35s - loss: 0.019
9(450, 160, 320, 3)
12116/20000 [=================>............] - ETA: 33s - loss: 0.019
8(460, 160, 320, 3)
12575/20000 [=================>............] - ETA: 31s - loss: 0.019
7(461, 160, 320, 3)
13035/20000 [==================>...........] - ETA: 29s - loss: 0.019
7(466, 160, 320, 3)
13492/20000 [==================>...........] - ETA: 27s - loss: 0.019
6(454, 160, 320, 3)
13943/20000 [===================>..........] - ETA: 25s - loss: 0.019
5(464, 160, 320, 3)
14403/20000 [====================>.........] - ETA: 23s - loss: 0.019
5(468, 160, 320, 3)
14866/20000 [=====================>........] - ETA: 21s - loss: 0.019
5(463, 160, 320, 3)
```

```
15315/20000 [=====================>........] - ETA: 19s - loss: 0.019
5(463, 160, 320, 3)
15782/20000 [======================>.......] - ETA: 17s - loss: 0.019
5(458, 160, 320, 3)
16252/20000 [======================>......] - ETA: 15s - loss: 0.019
5(458, 160, 320, 3)
16702/20000 [=======================>.....] - ETA: 13s - loss: 0.019
6(458, 160, 320, 3)
17162/20000 [=======================>.....] - ETA: 12s - loss: 0.019
6(458, 160, 320, 3)
17623/20000 [========================>....] - ETA: 10s - loss: 0.019
6(458, 160, 320, 3)
18089/20000 [========================>...] - ETA: 8s - loss: 0.0196
 (475, 160, 320, 3)
18543/20000 [=========================>...] - ETA: 6s - loss: 0.0195
(467, 160, 320, 3)
19007/20000 [=========================>..] - ETA: 4s - loss: 0.0195
(451, 160, 320, 3)
19475/20000 [==========================>.] - ETA: 2s - loss: 0.0194
(461, 160, 320, 3)
19938/20000 [==========================>.] - ETA: 0s - loss: 0.0193
(459, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00004: saving model to Nvidias-check-04-0.0120.hdf5
20401/20000 [==============================] - 91s - loss: 0.0193 - v
al_loss: 0.0120
Epoch 6/25
(462, 160, 320, 3)
  458/20000 [..............................] - ETA: 81s - loss: 0.018
7(473, 160, 320, 3)
  916/20000 [>.............................] - ETA: 78s - loss: 0.018
```

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1(453, 160, 320, 3)
 1374/20000 [=>............................] - ETA: 76s - loss: 0.019
5(457, 160, 320, 3)
 1832/20000 [=>............................] - ETA: 74s - loss: 0.019
6(463, 160, 320, 3)
 2290/20000 [==>...........................] - ETA: 72s - loss: 0.019
4(469, 160, 320, 3)
 2765/20000 [===>..........................] - ETA: 70s - loss: 0.018
9(465, 160, 320, 3)
 3232/20000 [===>..........................] - ETA: 68s - loss: 0.019
1(470, 160, 320, 3)
 3683/20000 [====>.........................] - ETA: 66s - loss: 0.019
2(454, 160, 320, 3)
 4144/20000 [=====>........................] - ETA: 66s - loss: 0.018
7(460, 160, 320, 3)
 4603/20000 [=====>........................] - ETA: 64s - loss: 0.018
4(460, 160, 320, 3)
 5065/20000 [======>.......................] - ETA: 62s - loss: 0.018
9(464, 160, 320, 3)
 5538/20000 [=======>......................] - ETA: 61s - loss: 0.018
7(474, 160, 320, 3)
 5991/20000 [=======>......................] - ETA: 58s - loss: 0.018
7(460, 160, 320, 3)
 6448/20000 [========>.....................] - ETA: 58s - loss: 0.018
3(464, 160, 320, 3)
 6911/20000 [=========>....................] - ETA: 55s - loss: 0.018
8(451, 160, 320, 3)
 7380/20000 [==========>...................] - ETA: 54s - loss: 0.018
7(462, 160, 320, 3)
 7845/20000 [==========>...................] - ETA: 52s - loss: 0.018
7(464, 160, 320, 3)
 8315/20000 [===========>..................] - ETA: 51s - loss: 0.018
5(462, 160, 320, 3)
 8769/20000 [============>.................] - ETA: 48s - loss: 0.018
5(465, 160, 320, 3)
 9229/20000 [============>.................] - ETA: 46s - loss: 0.018
7(95, 160, 320, 3)
 9689/20000 [=============>................] - ETA: 45s - loss: 0.018
8(467, 160, 320, 3)
10153/20000 [==============>...............] - ETA: 42s - loss: 0.018
7(472, 160, 320, 3)
10627/20000 [==============>...............] - ETA: 41s - loss: 0.018
6(457, 160, 320, 3)
11087/20000 [===============>..............] - ETA: 39s - loss: 0.018
8(464, 160, 320, 3)
11551/20000 [================>.............] - ETA: 37s - loss: 0.019
3(444, 160, 320, 3)
12002/20000 [================>.............] - ETA: 35s - loss: 0.019
4(459, 160, 320, 3)
12464/20000 [=================>............] - ETA: 33s - loss: 0.019
4(462, 160, 320, 3)
12928/20000 [==================>...........] - ETA: 31s - loss: 0.019
5(468, 160, 320, 3)
13390/20000 [==================>...........] - ETA: 29s - loss: 0.019
4(467, 160, 320, 3)
13950/20000 [===================>..........] - ETA: 27s - loss: 0.019
5(470, 160, 320, 3)
```

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(461, 160, 320, 3)
14417/20000 [====================>.........] - ETA: 24s - loss: 0.019
6(456, 160, 320, 3)
14889/20000 [====================>........] - ETA: 22s - loss: 0.019
5(458, 160, 320, 3)
15346/20000 [=====================>.......] - ETA: 20s - loss: 0.019
4(475, 160, 320, 3)
15810/20000 [=====================>.......] - ETA: 18s - loss: 0.019
4(463, 160, 320, 3)
16254/20000 [======================>......] - ETA: 16s - loss: 0.019
4(463, 160, 320, 3)
16713/20000 [======================>.....] - ETA: 14s - loss: 0.019
3(470, 160, 320, 3)
17175/20000 [======================>.....] - ETA: 12s - loss: 0.019
3(450, 160, 320, 3)
17643/20000 [=======================>....] - ETA: 10s - loss: 0.019
3(450, 160, 320, 3)
18110/20000 [=======================>...] - ETA: 8s - loss: 0.0194
 (457, 160, 320, 3)
18580/20000 [========================>...] - ETA: 6s - loss: 0.0193
(450, 160, 320, 3)
19041/20000 [========================>..] - ETA: 4s - loss: 0.0193
(450, 160, 320, 3)
19497/20000 [=========================>.] - ETA: 2s - loss: 0.0194
(471, 160, 320, 3)
19955/20000 [=========================>.] - ETA: 0s - loss: 0.0193
(463, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00005: saving model to Nvidias-check-05-0.0117.hdf5
20430/20000 [==============================] - 97s - loss: 0.0193 - v
al_loss: 0.0117
```

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Epoch 7/25
(460, 160, 320, 3)
  463/20000 [..............................] - ETA: 98s - loss: 0.018
3(456, 160, 320, 3)
  926/20000 [>.............................] - ETA: 84s - loss: 0.018
2(460, 160, 320, 3)
 1396/20000 [=>............................] - ETA: 88s - loss: 0.018
9(463, 160, 320, 3)
 1846/20000 [=>............................] - ETA: 82s - loss: 0.017
6(458, 160, 320, 3)
 2296/20000 [==>...........................] - ETA: 78s - loss: 0.017
0(466, 160, 320, 3)
 2753/20000 [===>..........................] - ETA: 75s - loss: 0.016
8(456, 160, 320, 3)
 3203/20000 [===>..........................] - ETA: 72s - loss: 0.017
1(462, 160, 320, 3)
 3653/20000 [====>.........................] - ETA: 69s - loss: 0.016
9(460, 160, 320, 3)
 4124/20000 [=====>........................] - ETA: 66s - loss: 0.017
6(465, 160, 320, 3)
 4587/20000 [=====>........................] - ETA: 64s - loss: 0.017
9(462, 160, 320, 3)
 5047/20000 [======>.......................] - ETA: 62s - loss: 0.018
1(461, 160, 320, 3)
 5503/20000 [=======>......................] - ETA: 60s - loss: 0.017
9(460, 160, 320, 3)
 5963/20000 [=======>......................] - ETA: 58s - loss: 0.018
2(455, 160, 320, 3)
 6426/20000 [========>.....................] - ETA: 56s - loss: 0.018
3(458, 160, 320, 3)
 6884/20000 [=========>.....................] - ETA: 54s - loss: 0.018
1(466, 160, 320, 3)
 7350/20000 [==========>....................] - ETA: 52s - loss: 0.018
1(452, 160, 320, 3)
 7806/20000 [==========>....................] - ETA: 50s - loss: 0.018
5(466, 160, 320, 3)
 8268/20000 [===========>...................] - ETA: 48s - loss: 0.018
5(450, 160, 320, 3)
 8728/20000 [============>..................] - ETA: 46s - loss: 0.018
4(472, 160, 320, 3)
 9193/20000 [============>..................] - ETA: 44s - loss: 0.018
3(467, 160, 320, 3)
 9655/20000 [=============>.................] - ETA: 43s - loss: 0.018
5(448, 160, 320, 3)
10116/20000 [==============>................] - ETA: 41s - loss: 0.018
4(455, 160, 320, 3)
10576/20000 [==============>................] - ETA: 39s - loss: 0.018
3(470, 160, 320, 3)
11031/20000 [===============>...............] - ETA: 37s - loss: 0.018
2(450, 160, 320, 3)
11489/20000 [================>..............] - ETA: 35s - loss: 0.018
2(471, 160, 320, 3)
11955/20000 [================>..............] - ETA: 33s - loss: 0.018
4(104, 160, 320, 3)
12407/20000 [=================>.............] - ETA: 31s - loss: 0.018
4(461, 160, 320, 3)
12873/20000 [==================>............] - ETA: 29s - loss: 0.018
```

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3(463, 160, 320, 3)
13323/20000 [==================>...........] - ETA: 27s - loss: 0.018
3(449, 160, 320, 3)
13795/20000 [==================>...........] - ETA: 25s - loss: 0.018
4(467, 160, 320, 3)
14262/20000 [===================>.........] - ETA: 24s - loss: 0.018
8(453, 160, 320, 3)
14710/20000 [====================>........] - ETA: 22s - loss: 0.018
8(451, 160, 320, 3)
15165/20000 [====================>........] - ETA: 20s - loss: 0.018
8(471, 160, 320, 3)
15635/20000 [=====================>.......] - ETA: 18s - loss: 0.019
0(457, 160, 320, 3)
16085/20000 [======================>......] - ETA: 16s - loss: 0.018
9(461, 160, 320, 3)
16660/20000 [======================>......] - ETA: 14s - loss: 0.018
9(469, 160, 320, 3)
(455, 160, 320, 3)
17121/20000 [=======================>.....] - ETA: 12s - loss: 0.018
9(458, 160, 320, 3)
17584/20000 [=======================>....] - ETA: 10s - loss: 0.018
8(458, 160, 320, 3)
18033/20000 [========================>...] - ETA: 8s - loss: 0.0187
 (462, 160, 320, 3)
18500/20000 [========================>...] - ETA: 6s - loss: 0.0187
(461, 160, 320, 3)
18953/20000 [=========================>..] - ETA: 4s - loss: 0.0186
(465, 160, 320, 3)
19404/20000 [==========================>.] - ETA: 2s - loss: 0.0185
(450, 160, 320, 3)
19875/20000 [==========================>.] - ETA: 0s - loss: 0.0186
(462, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
```

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(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00006: saving model to Nvidias-check-06-0.0115.hdf5
20332/20000 [==============================] - 93s - loss: 0.0187 - v
al_loss: 0.0115
Epoch 8/25
(464, 160, 320, 3)
  461/20000 [..............................] - ETA: 104s - loss: 0.01
97(461, 160, 320, 3)
  930/20000 [>.............................] - ETA: 87s - loss: 0.017
2 (449, 160, 320, 3)
 1385/20000 [=>............................] - ETA: 80s - loss: 0.017
1(457, 160, 320, 3)
 1843/20000 [=>............................] - ETA: 83s - loss: 0.017
8(472, 160, 320, 3)
 2301/20000 [==>...........................] - ETA: 79s - loss: 0.017
9(467, 160, 320, 3)
 2763/20000 [===>..........................] - ETA: 75s - loss: 0.018
1(455, 160, 320, 3)
 3224/20000 [===>..........................] - ETA: 75s - loss: 0.018
2(457, 160, 320, 3)
 3689/20000 [====>.........................] - ETA: 72s - loss: 0.018
0(468, 160, 320, 3)
 4139/20000 [=====>........................] - ETA: 69s - loss: 0.018
4(461, 160, 320, 3)
 4601/20000 [=====>........................] - ETA: 68s - loss: 0.018
0(453, 160, 320, 3)
 5065/20000 [======>.......................] - ETA: 66s - loss: 0.017
8(464, 160, 320, 3)
 5526/20000 [=======>......................] - ETA: 63s - loss: 0.017
9(452, 160, 320, 3)
 5975/20000 [=======>......................] - ETA: 61s - loss: 0.018
0(462, 160, 320, 3)
 6432/20000 [========>.....................] - ETA: 58s - loss: 0.018
0(457, 160, 320, 3)
 6904/20000 [=========>.....................] - ETA: 56s - loss: 0.018
3(463, 160, 320, 3)
 7371/20000 [==========>....................] - ETA: 54s - loss: 0.018
3(456, 160, 320, 3)
 7826/20000 [==========>....................] - ETA: 52s - loss: 0.018
5(465, 160, 320, 3)
 8283/20000 [===========>...................] - ETA: 49s - loss: 0.018
4(455, 160, 320, 3)
 8751/20000 [============>..................] - ETA: 48s - loss: 0.018
5(454, 160, 320, 3)
 9212/20000 [============>..................] - ETA: 46s - loss: 0.018
7(466, 160, 320, 3)
 9665/20000 [=============>.................] - ETA: 44s - loss: 0.018
5(449, 160, 320, 3)
10129/20000 [==============>................] - ETA: 42s - loss: 0.018
6(451, 160, 320, 3)
10581/20000 [==============>................] - ETA: 40s - loss: 0.018
9(480, 160, 320, 3)
11043/20000 [===============>..............] - ETA: 38s - loss: 0.019
0(474, 160, 320, 3)
11500/20000 [================>.............] - ETA: 37s - loss: 0.018
9(459, 160, 320, 3)
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11963/20000 [================>.............] - ETA: 35s - loss: 0.018
7(453, 160, 320, 3)
12419/20000 [=================>............] - ETA: 33s - loss: 0.018
8(459, 160, 320, 3)
12884/20000 [==================>...........] - ETA: 31s - loss: 0.018
7(457, 160, 320, 3)
13339/20000 [==================>...........] - ETA: 29s - loss: 0.018
5(468, 160, 320, 3)
13793/20000 [===================>..........] - ETA: 27s - loss: 0.018
4(468, 160, 320, 3)
14259/20000 [====================>.........] - ETA: 25s - loss: 0.018
3(457, 160, 320, 3)
14708/20000 [====================>.........] - ETA: 23s - loss: 0.018
4(101, 160, 320, 3)
15159/20000 [=====================>........] - ETA: 21s - loss: 0.018
4(470, 160, 320, 3)
15639/20000 [======================>.......] - ETA: 19s - loss: 0.018
4(460, 160, 320, 3)
16113/20000 [======================>.......] - ETA: 17s - loss: 0.018
3(457, 160, 320, 3)
16572/20000 [=======================>......] - ETA: 15s - loss: 0.018
4(456, 160, 320, 3)
17025/20000 [=======================>......] - ETA: 13s - loss: 0.018
7(462, 160, 320, 3)
17484/20000 [========================>.....] - ETA: 11s - loss: 0.018
7(466, 160, 320, 3)
17941/20000 [========================>.....] - ETA: 9s - loss: 0.0187
 (449, 160, 320, 3)
18409/20000 [=========================>....] - ETA: 7s - loss: 0.0189
(470, 160, 320, 3)
18877/20000 [==========================>...] - ETA: 4s - loss: 0.0188
(453, 160, 320, 3)
19435/20000 [==========================>...] - ETA: 2s - loss: 0.0188
(458, 160, 320, 3)
(458, 160, 320, 3)
19905/20000 [==========================>...] - ETA: 0s - loss: 0.0189
(458, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00007: saving model to Nvidias-check-07-0.0116.hdf5
20365/20000 [==============================] - 95s - loss: 0.0188 - v
al_loss: 0.0116
Epoch 9/25
(466, 160, 320, 3)
  457/20000 [..............................] - ETA: 92s - loss: 0.014
8(465, 160, 320, 3)
  913/20000 [>.............................] - ETA: 93s - loss: 0.016
6(463, 160, 320, 3)
 1375/20000 [=>............................] - ETA: 89s - loss: 0.015
9(462, 160, 320, 3)
 1841/20000 [=>............................] - ETA: 85s - loss: 0.015
7(467, 160, 320, 3)
 2290/20000 [==>...........................] - ETA: 81s - loss: 0.016
2(460, 160, 320, 3)
 2760/20000 [===>..........................] - ETA: 77s - loss: 0.017
2(469, 160, 320, 3)
 3213/20000 [===>..........................] - ETA: 74s - loss: 0.017
3(464, 160, 320, 3)
 3671/20000 [====>.........................] - ETA: 72s - loss: 0.017
2(458, 160, 320, 3)
 4129/20000 [=====>........................] - ETA: 69s - loss: 0.017
7(466, 160, 320, 3)
 4587/20000 [=====>........................] - ETA: 68s - loss: 0.017
8(456, 160, 320, 3)
 5053/20000 [======>.......................] - ETA: 66s - loss: 0.017
8(467, 160, 320, 3)
 5518/20000 [=======>......................] - ETA: 64s - loss: 0.018
1(456, 160, 320, 3)
 5981/20000 [=======>......................] - ETA: 62s - loss: 0.018
2(456, 160, 320, 3)
 6443/20000 [========>.....................] - ETA: 60s - loss: 0.018
1(462, 160, 320, 3)
 6910/20000 [=========>.....................] - ETA: 58s - loss: 0.018
2(453, 160, 320, 3)
 7370/20000 [==========>....................] - ETA: 55s - loss: 0.018
1(467, 160, 320, 3)
 7839/20000 [==========>....................] - ETA: 53s - loss: 0.017
9(459, 160, 320, 3)
 8303/20000 [===========>...................] - ETA: 51s - loss: 0.017
7(453, 160, 320, 3)
 8761/20000 [============>..................] - ETA: 49s - loss: 0.017
8(457, 160, 320, 3)
 9227/20000 [============>..................] - ETA: 47s - loss: 0.017
8(455, 160, 320, 3)
 9683/20000 [=============>.................] - ETA: 45s - loss: 0.018
0(465, 160, 320, 3)
10150/20000 [==============>................] - ETA: 43s - loss: 0.018
1(463, 160, 320, 3)
10606/20000 [==============>................] - ETA: 41s - loss: 0.018
```

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3(465, 160, 320, 3)
11062/20000 [===============>.............] - ETA: 38s - loss: 0.018
2(469, 160, 320, 3)
11524/20000 [================>............] - ETA: 37s - loss: 0.018
3(452, 160, 320, 3)
11977/20000 [================>............] - ETA: 35s - loss: 0.018
3(468, 160, 320, 3)
12444/20000 [=================>............] - ETA: 33s - loss: 0.018
2(472, 160, 320, 3)
12903/20000 [==================>...........] - ETA: 31s - loss: 0.018
2(458, 160, 320, 3)
13356/20000 [==================>...........] - ETA: 29s - loss: 0.018
3(465, 160, 320, 3)
13813/20000 [===================>..........] - ETA: 27s - loss: 0.018
3(452, 160, 320, 3)
14268/20000 [===================>..........] - ETA: 25s - loss: 0.018
3(461, 160, 320, 3)
14733/20000 [====================>.........] - ETA: 23s - loss: 0.018
2(456, 160, 320, 3)
15196/20000 [====================>.........] - ETA: 21s - loss: 0.018
3(472, 160, 320, 3)
15661/20000 [=====================>........] - ETA: 19s - loss: 0.018
3(463, 160, 320, 3)
16130/20000 [======================>.......] - ETA: 17s - loss: 0.018
2(464, 160, 320, 3)
16582/20000 [======================>.......] - ETA: 15s - loss: 0.018
0(453, 160, 320, 3)
17050/20000 [=======================>......] - ETA: 13s - loss: 0.018
1(463, 160, 320, 3)
17522/20000 [=======================>......] - ETA: 11s - loss: 0.018
2(103, 160, 320, 3)
17980/20000 [========================>.....] - ETA: 9s - loss: 0.0182
 (454, 160, 320, 3)
18445/20000 [========================>.....] - ETA: 6s - loss: 0.0182
(467, 160, 320, 3)
18897/20000 [=========================>....] - ETA: 4s - loss: 0.0181
(460, 160, 320, 3)
19358/20000 [=========================>....] - ETA: 2s - loss: 0.0183
(455, 160, 320, 3)
19814/20000 [==========================>...] - ETA: 0s - loss: 0.0185
(473, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00008: saving model to Nvidias-check-08-0.0113.hdf5
20286/20000 [==============================] - 97s - loss: 0.0186 - v
al_loss: 0.0113
Epoch 10/25
(468, 160, 320, 3)
  463/20000 [..............................] - ETA: 107s - loss: 0.01
68(463, 160, 320, 3)
  927/20000 [>.............................] - ETA: 89s - loss: 0.020
3 (461, 160, 320, 3)
 1380/20000 [=>............................] - ETA: 91s - loss: 0.019
1(456, 160, 320, 3)
 1946/20000 [=>............................] - ETA: 83s - loss: 0.018
4(453, 160, 320, 3)
(456, 160, 320, 3)
 2400/20000 [==>...........................] - ETA: 85s - loss: 0.019
3(463, 160, 320, 3)
 2867/20000 [===>..........................] - ETA: 80s - loss: 0.019
0(456, 160, 320, 3)
 3327/20000 [===>..........................] - ETA: 78s - loss: 0.018
2(459, 160, 320, 3)
 3782/20000 [====>.........................] - ETA: 75s - loss: 0.018
3(454, 160, 320, 3)
 4255/20000 [=====>........................] - ETA: 72s - loss: 0.018
1(454, 160, 320, 3)
 4723/20000 [======>.......................] - ETA: 69s - loss: 0.017
9(473, 160, 320, 3)
 5186/20000 [======>.......................] - ETA: 67s - loss: 0.018
1(453, 160, 320, 3)
 5647/20000 [=======>......................] - ETA: 64s - loss: 0.018
3(472, 160, 320, 3)
 6103/20000 [========>.....................] - ETA: 61s - loss: 0.018
3(452, 160, 320, 3)
 6556/20000 [========>.....................] - ETA: 60s - loss: 0.018
0(460, 160, 320, 3)
 7012/20000 [=========>....................] - ETA: 58s - loss: 0.017
9(465, 160, 320, 3)
 7475/20000 [==========>...................] - ETA: 56s - loss: 0.017
9(463, 160, 320, 3)
 7931/20000 [==========>...................] - ETA: 54s - loss: 0.017
9(459, 160, 320, 3)
 8390/20000 [===========>..................] - ETA: 52s - loss: 0.017
9(455, 160, 320, 3)
 8844/20000 [============>.................] - ETA: 50s - loss: 0.017
9(467, 160, 320, 3)
 9298/20000 [============>.................] - ETA: 48s - loss: 0.017
9(457, 160, 320, 3)
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 9771/20000 [=============>................] - ETA: 46s - loss: 0.017
9(479, 160, 320, 3)
10224/20000 [==============>...............] - ETA: 44s - loss: 0.017
7(459, 160, 320, 3)
10696/20000 [===============>..............] - ETA: 42s - loss: 0.017
6(459, 160, 320, 3)
11148/20000 [===============>..............] - ETA: 40s - loss: 0.017
5(452, 160, 320, 3)
11608/20000 [================>.............] - ETA: 37s - loss: 0.017
6(462, 160, 320, 3)
12073/20000 [=================>............] - ETA: 35s - loss: 0.017
6(467, 160, 320, 3)
12536/20000 [=================>............] - ETA: 33s - loss: 0.017
8(472, 160, 320, 3)
12995/20000 [==================>...........] - ETA: 31s - loss: 0.017
8(464, 160, 320, 3)
13450/20000 [===================>..........] - ETA: 29s - loss: 0.017
8(452, 160, 320, 3)
13917/20000 [===================>..........] - ETA: 27s - loss: 0.017
9(447, 160, 320, 3)
14374/20000 [====================>.........] - ETA: 25s - loss: 0.017
9(462, 160, 320, 3)
14853/20000 [====================>.........] - ETA: 23s - loss: 0.018
0(461, 160, 320, 3)
15312/20000 [=====================>........] - ETA: 21s - loss: 0.017
9(456, 160, 320, 3)
15771/20000 [=====================>........] - ETA: 19s - loss: 0.018
0(456, 160, 320, 3)
16223/20000 [======================>.......] - ETA: 17s - loss: 0.018
1(466, 160, 320, 3)
16685/20000 [======================>.......] - ETA: 14s - loss: 0.018
1(470, 160, 320, 3)
17152/20000 [=======================>......] - ETA: 12s - loss: 0.018
0(453, 160, 320, 3)
17624/20000 [=======================>......] - ETA: 10s - loss: 0.018
0(457, 160, 320, 3)
18088/20000 [========================>.....] - ETA: 8s - loss: 0.0181
 (465, 160, 320, 3)
18540/20000 [========================>.....] - ETA: 6s - loss: 0.0180
(461, 160, 320, 3)
18987/20000 [=========================>....] - ETA: 4s - loss: 0.0180
(455, 160, 320, 3)
19449/20000 [=========================>....] - ETA: 2s - loss: 0.0180
(463, 160, 320, 3)
19910/20000 [=========================>....] - ETA: 0s - loss: 0.0180
(463, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00009: saving model to Nvidias-check-09-0.0104.hdf5
20366/20000 [==============================] - 96s - loss: 0.0181 - v
al_loss: 0.0104
Epoch 11/25
(100, 160, 320, 3)
  456/20000 [..............................] - ETA: 75s - loss: 0.018
1(462, 160, 320, 3)
  922/20000 [>.............................] - ETA: 74s - loss: 0.019
4(461, 160, 320, 3)
 1392/20000 [=>............................] - ETA: 74s - loss: 0.018
3(465, 160, 320, 3)
 1845/20000 [=>............................] - ETA: 73s - loss: 0.018
7(465, 160, 320, 3)
 2302/20000 [==>...........................] - ETA: 72s - loss: 0.020
8(468, 160, 320, 3)
 2767/20000 [===>..........................] - ETA: 71s - loss: 0.020
6(457, 160, 320, 3)
 3228/20000 [===>..........................] - ETA: 70s - loss: 0.020
1(466, 160, 320, 3)
 3683/20000 [====>.........................] - ETA: 68s - loss: 0.020
5(462, 160, 320, 3)
 4146/20000 [=====>........................] - ETA: 67s - loss: 0.020
0(459, 160, 320, 3)
 4709/20000 [======>.......................] - ETA: 64s - loss: 0.019
6(453, 160, 320, 3)
(456, 160, 320, 3)
 5171/20000 [======>.......................] - ETA: 62s - loss: 0.019
8(453, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 60s - loss: 0.019
8(464, 160, 320, 3)
 6097/20000 [========>.....................] - ETA: 58s - loss: 0.019
4(452, 160, 320, 3)
 6562/20000 [========>.....................] - ETA: 56s - loss: 0.019
6(445, 160, 320, 3)
 7030/20000 [=========>....................] - ETA: 54s - loss: 0.019
3(460, 160, 320, 3)
 7487/20000 [==========>...................] - ETA: 52s - loss: 0.019
0(466, 160, 320, 3)
 7953/20000 [==========>...................] - ETA: 50s - loss: 0.019
0(478, 160, 320, 3)
 8415/20000 [===========>..................] - ETA: 48s - loss: 0.019
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0(456, 160, 320, 3)
 8874/20000 [============>.................] - ETA: 46s - loss: 0.018
9(463, 160, 320, 3)
 9327/20000 [============>.................] - ETA: 44s - loss: 0.018
8(462, 160, 320, 3)
 9783/20000 [=============>................] - ETA: 42s - loss: 0.018
9(466, 160, 320, 3)
10236/20000 [==============>...............] - ETA: 40s - loss: 0.018
8(457, 160, 320, 3)
10700/20000 [===============>..............] - ETA: 39s - loss: 0.018
8(451, 160, 320, 3)
11152/20000 [===============>..............] - ETA: 37s - loss: 0.018
7(460, 160, 320, 3)
11597/20000 [================>.............] - ETA: 35s - loss: 0.018
6(453, 160, 320, 3)
12057/20000 [================>.............] - ETA: 33s - loss: 0.018
5(459, 160, 320, 3)
12523/20000 [=================>............] - ETA: 31s - loss: 0.018
5(466, 160, 320, 3)
13001/20000 [=================>............] - ETA: 29s - loss: 0.018
4(470, 160, 320, 3)
13457/20000 [==================>...........] - ETA: 28s - loss: 0.018
3(468, 160, 320, 3)
13920/20000 [==================>...........] - ETA: 26s - loss: 0.018
2(459, 160, 320, 3)
14382/20000 [===================>..........] - ETA: 24s - loss: 0.018
2(466, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 22s - loss: 0.018
1(467, 160, 320, 3)
15305/20000 [====================>.........] - ETA: 20s - loss: 0.018
2(468, 160, 320, 3)
15756/20000 [=====================>........] - ETA: 18s - loss: 0.018
2(458, 160, 320, 3)
16216/20000 [======================>.......] - ETA: 16s - loss: 0.018
2(464, 160, 320, 3)
16669/20000 [======================>.......] - ETA: 14s - loss: 0.018
2(453, 160, 320, 3)
17128/20000 [=======================>......] - ETA: 12s - loss: 0.018
2(459, 160, 320, 3)
17594/20000 [========================>.....] - ETA: 10s - loss: 0.018
2(456, 160, 320, 3)
18064/20000 [========================>.....] - ETA: 8s - loss: 0.0181
 (469, 160, 320, 3)
18532/20000 [=========================>....] - ETA: 6s - loss: 0.0181
(448, 160, 320, 3)
18991/20000 [=========================>....] - ETA: 4s - loss: 0.0182
(448, 160, 320, 3)
19457/20000 [==========================>...] - ETA: 2s - loss: 0.0181
(462, 160, 320, 3)
19924/20000 [==========================>...] - ETA: 0s - loss: 0.0181
(464, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00010: saving model to Nvidias-check-10-0.0099.hdf5
20392/20000 [==============================] - 95s - loss: 0.0180 - v
al_loss: 0.0099
Epoch 12/25
(460, 160, 320, 3)
  458/20000 [..............................] - ETA: 106s - loss: 0.02
36(461, 160, 320, 3)
  922/20000 [>.............................] - ETA: 88s - loss: 0.020
2 (461, 160, 320, 3)
 1375/20000 [=>............................] - ETA: 83s - loss: 0.019
1(453, 160, 320, 3)
 1834/20000 [=>............................] - ETA: 84s - loss: 0.018
2(471, 160, 320, 3)
 2290/20000 [==>...........................] - ETA: 79s - loss: 0.018
2(459, 160, 320, 3)
 2759/20000 [===>..........................] - ETA: 78s - loss: 0.019
1(101, 160, 320, 3)
 3207/20000 [===>..........................] - ETA: 75s - loss: 0.019
3(448, 160, 320, 3)
 3655/20000 [====>.........................] - ETA: 72s - loss: 0.018
9(453, 160, 320, 3)
 4117/20000 [=====>........................] - ETA: 72s - loss: 0.018
5(450, 160, 320, 3)
 4581/20000 [=====>........................] - ETA: 69s - loss: 0.018
8(465, 160, 320, 3)
 5041/20000 [======>.......................] - ETA: 66s - loss: 0.019
6(464, 160, 320, 3)
 5502/20000 [=======>......................] - ETA: 64s - loss: 0.019
5(458, 160, 320, 3)
 5963/20000 [=======>......................] - ETA: 62s - loss: 0.019
3(461, 160, 320, 3)
 6416/20000 [========>.....................] - ETA: 61s - loss: 0.019
7(467, 160, 320, 3)
 6887/20000 [=========>....................] - ETA: 58s - loss: 0.019
3(450, 160, 320, 3)
 7447/20000 [==========>...................] - ETA: 56s - loss: 0.019
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5(465, 160, 320, 3)
(468, 160, 320, 3)
 7895/20000 [==========>..................] - ETA: 54s - loss: 0.019
7(461, 160, 320, 3)
 8348/20000 [===========>.................] - ETA: 53s - loss: 0.019
5(457, 160, 320, 3)
 8798/20000 [============>................] - ETA: 50s - loss: 0.019
3(467, 160, 320, 3)
 9263/20000 [============>................] - ETA: 49s - loss: 0.019
3(465, 160, 320, 3)
 9727/20000 [=============>...............] - ETA: 46s - loss: 0.019
1(460, 160, 320, 3)
10185/20000 [==============>..............] - ETA: 44s - loss: 0.019
0(464, 160, 320, 3)
10646/20000 [==============>..............] - ETA: 42s - loss: 0.019
0(465, 160, 320, 3)
11113/20000 [===============>.............] - ETA: 40s - loss: 0.019
0(459, 160, 320, 3)
11563/20000 [================>............] - ETA: 38s - loss: 0.019
0(459, 160, 320, 3)
12028/20000 [=================>............] - ETA: 36s - loss: 0.019
0(460, 160, 320, 3)
12496/20000 [=================>............] - ETA: 34s - loss: 0.019
0(461, 160, 320, 3)
12957/20000 [==================>...........] - ETA: 31s - loss: 0.019
0(458, 160, 320, 3)
13414/20000 [===================>..........] - ETA: 30s - loss: 0.018
9(449, 160, 320, 3)
13881/20000 [===================>..........] - ETA: 27s - loss: 0.018
9(453, 160, 320, 3)
14346/20000 [====================>.........] - ETA: 25s - loss: 0.018
9(452, 160, 320, 3)
14806/20000 [=====================>........] - ETA: 23s - loss: 0.018
8(459, 160, 320, 3)
15270/20000 [=====================>........] - ETA: 21s - loss: 0.018
9(459, 160, 320, 3)
15735/20000 [======================>.......] - ETA: 19s - loss: 0.018
7(456, 160, 320, 3)
16194/20000 [=======================>......] - ETA: 17s - loss: 0.018
6(459, 160, 320, 3)
16653/20000 [=======================>......] - ETA: 15s - loss: 0.018
5(465, 160, 320, 3)
17113/20000 [========================>.....] - ETA: 13s - loss: 0.018
5(459, 160, 320, 3)
17574/20000 [=========================>....] - ETA: 11s - loss: 0.018
4(464, 160, 320, 3)
18032/20000 [==========================>...] - ETA: 8s - loss: 0.0185
 (460, 160, 320, 3)
18481/20000 [==========================>...] - ETA: 6s - loss: 0.0185
(461, 160, 320, 3)
18934/20000 [===========================>..] - ETA: 4s - loss: 0.0185
(456, 160, 320, 3)
19386/20000 [===========================>.] - ETA: 2s - loss: 0.0185
(448, 160, 320, 3)
19845/20000 [============================>.] - ETA: 0s - loss: 0.0186
(452, 160, 320, 3)
(128, 160, 320, 3)
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(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00011: saving model to Nvidias-check-11-0.0109.hdf5
20304/20000 [==============================] - 97s - loss: 0.0186 - v
al_loss: 0.0109
Epoch 13/25
(446, 160, 320, 3)
  456/20000 [..............................] - ETA: 80s - loss: 0.013
5(462, 160, 320, 3)
  915/20000 [>.............................] - ETA: 76s - loss: 0.016
0(454, 160, 320, 3)
 1380/20000 [=>............................] - ETA: 75s - loss: 0.018
3(474, 160, 320, 3)
 1839/20000 [=>............................] - ETA: 73s - loss: 0.018
0(468, 160, 320, 3)
 2303/20000 [==>...........................] - ETA: 72s - loss: 0.017
7(450, 160, 320, 3)
 2763/20000 [===>..........................] - ETA: 71s - loss: 0.017
0(458, 160, 320, 3)
 3224/20000 [===>..........................] - ETA: 69s - loss: 0.017
9(459, 160, 320, 3)
 3680/20000 [====>.........................] - ETA: 67s - loss: 0.017
9(466, 160, 320, 3)
 4128/20000 [=====>........................] - ETA: 65s - loss: 0.017
7(462, 160, 320, 3)
 4580/20000 [=====>........................] - ETA: 63s - loss: 0.017
5(465, 160, 320, 3)
 5026/20000 [======>.......................] - ETA: 61s - loss: 0.017
8(456, 160, 320, 3)
 5488/20000 [=======>......................] - ETA: 59s - loss: 0.018
2(98, 160, 320, 3)
 5942/20000 [=======>......................] - ETA: 57s - loss: 0.018
3(478, 160, 320, 3)
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 6416/20000 [========>.....................] - ETA: 55s - loss: 0.018
3(442, 160, 320, 3)
 6884/20000 [=========>.....................] - ETA: 53s - loss: 0.018
1(467, 160, 320, 3)
 7334/20000 [==========>.....................] - ETA: 51s - loss: 0.018
3(462, 160, 320, 3)
 7792/20000 [==========>.....................] - ETA: 49s - loss: 0.018
8(473, 160, 320, 3)
 8251/20000 [===========>.....................] - ETA: 47s - loss: 0.018
8(461, 160, 320, 3)
 8717/20000 [============>.....................] - ETA: 45s - loss: 0.018
7(465, 160, 320, 3)
 9179/20000 [============>.....................] - ETA: 43s - loss: 0.018
9(466, 160, 320, 3)
 9644/20000 [=============>.....................] - ETA: 42s - loss: 0.018
7(459, 160, 320, 3)
10198/20000 [==============>.....................] - ETA: 40s - loss: 0.018
7(476, 160, 320, 3)
(446, 160, 320, 3)
10676/20000 [==============>.....................] - ETA: 38s - loss: 0.018
8(459, 160, 320, 3)
11118/20000 [===============>.....................] - ETA: 36s - loss: 0.018
8(477, 160, 320, 3)
11585/20000 [================>.....................] - ETA: 34s - loss: 0.018
7(456, 160, 320, 3)
12047/20000 [=================>.....................] - ETA: 32s - loss: 0.018
6(465, 160, 320, 3)
12520/20000 [=================>.....................] - ETA: 30s - loss: 0.018
5(456, 160, 320, 3)
12981/20000 [==================>.....................] - ETA: 29s - loss: 0.018
4(464, 160, 320, 3)
13446/20000 [===================>.....................] - ETA: 27s - loss: 0.018
3(468, 160, 320, 3)
13912/20000 [===================>.....................] - ETA: 25s - loss: 0.018
4(460, 160, 320, 3)
14371/20000 [====================>.....................] - ETA: 23s - loss: 0.018
5(452, 160, 320, 3)
14847/20000 [=====================>.....................] - ETA: 21s - loss: 0.018
4(458, 160, 320, 3)
15293/20000 [=====================>.....................] - ETA: 19s - loss: 0.018
4(455, 160, 320, 3)
15752/20000 [======================>.....................] - ETA: 17s - loss: 0.018
5(462, 160, 320, 3)
16229/20000 [======================>.....................] - ETA: 15s - loss: 0.018
4(466, 160, 320, 3)
16685/20000 [=======================>.....................] - ETA: 14s - loss: 0.018
4(451, 160, 320, 3)
17150/20000 [=======================>.....................] - ETA: 12s - loss: 0.018
3(460, 160, 320, 3)
17606/20000 [========================>.....................] - ETA: 10s - loss: 0.018
2(456, 160, 320, 3)
18070/20000 [========================>.....................] - ETA: 8s - loss: 0.0182
 (462, 160, 320, 3)
18538/20000 [=========================>.....................] - ETA: 6s - loss: 0.0181
(456, 160, 320, 3)
18998/20000 [=========================>.....................] - ETA: 4s - loss: 0.0180
(463, 160, 320, 3)
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19450/20000 [============================>.] - ETA: 2s - loss: 0.0179
(462, 160, 320, 3)
19908/20000 [============================>.] - ETA: 0s - loss: 0.0180
(465, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
Epoch 00012: saving model to Nvidias-check-12-0.0107.hdf5
20363/20000 [==============================] - 93s - loss: 0.0180 - v
al_loss: 0.0107
Epoch 14/25
(461, 160, 320, 3)
  462/20000 [..............................] - ETA: 80s - loss: 0.021
3(469, 160, 320, 3)
  928/20000 [>.............................] - ETA: 84s - loss: 0.020
8(465, 160, 320, 3)
 1379/20000 [=>............................] - ETA: 86s - loss: 0.019
7(471, 160, 320, 3)
 1839/20000 [=>............................] - ETA: 81s - loss: 0.019
0(461, 160, 320, 3)
 2295/20000 [==>...........................] - ETA: 76s - loss: 0.019
3(468, 160, 320, 3)
 2757/20000 [===>..........................] - ETA: 78s - loss: 0.019
6(459, 160, 320, 3)
 3213/20000 [===>..........................] - ETA: 74s - loss: 0.018
8(465, 160, 320, 3)
 3676/20000 [====>.........................] - ETA: 74s - loss: 0.018
8(463, 160, 320, 3)
 4138/20000 [=====>........................] - ETA: 70s - loss: 0.019
1(464, 160, 320, 3)
 4603/20000 [=====>........................] - ETA: 70s - loss: 0.018
5(455, 160, 320, 3)
 5064/20000 [======>.......................] - ETA: 66s - loss: 0.018
```

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3(464, 160, 320, 3)
 5533/20000 [=======>......................] - ETA: 64s - loss: 0.018
3(459, 160, 320, 3)
 5998/20000 [=======>......................] - ETA: 63s - loss: 0.018
4(460, 160, 320, 3)
 6469/20000 [========>.....................] - ETA: 60s - loss: 0.018
5(453, 160, 320, 3)
 6930/20000 [=========>....................] - ETA: 58s - loss: 0.018
4(452, 160, 320, 3)
 7398/20000 [==========>...................] - ETA: 55s - loss: 0.018
2(462, 160, 320, 3)
 7857/20000 [==========>...................] - ETA: 53s - loss: 0.018
3(460, 160, 320, 3)
 8322/20000 [===========>..................] - ETA: 51s - loss: 0.018
5(101, 160, 320, 3)
 8785/20000 [============>.................] - ETA: 48s - loss: 0.018
5(457, 160, 320, 3)
 9249/20000 [============>.................] - ETA: 46s - loss: 0.018
6(459, 160, 320, 3)
 9704/20000 [=============>................] - ETA: 44s - loss: 0.018
4(458, 160, 320, 3)
10168/20000 [==============>...............] - ETA: 42s - loss: 0.018
6(451, 160, 320, 3)
10627/20000 [==============>...............] - ETA: 40s - loss: 0.019
0(461, 160, 320, 3)
11087/20000 [===============>..............] - ETA: 38s - loss: 0.019
0(467, 160, 320, 3)
11540/20000 [================>.............] - ETA: 36s - loss: 0.018
8(457, 160, 320, 3)
11992/20000 [================>.............] - ETA: 34s - loss: 0.018
9(461, 160, 320, 3)
12454/20000 [=================>............] - ETA: 32s - loss: 0.018
8(459, 160, 320, 3)
13015/20000 [==================>...........] - ETA: 30s - loss: 0.018
8(455, 160, 320, 3)
(457, 160, 320, 3)
13472/20000 [===================>..........] - ETA: 28s - loss: 0.018
9(463, 160, 320, 3)
13931/20000 [===================>..........] - ETA: 26s - loss: 0.018
8(461, 160, 320, 3)
14389/20000 [====================>.........] - ETA: 24s - loss: 0.018
6(459, 160, 320, 3)
14840/20000 [=====================>........] - ETA: 22s - loss: 0.018
6(465, 160, 320, 3)
15301/20000 [=====================>........] - ETA: 20s - loss: 0.018
5(461, 160, 320, 3)
15768/20000 [======================>.......] - ETA: 18s - loss: 0.018
4(451, 160, 320, 3)
16225/20000 [=======================>......] - ETA: 16s - loss: 0.018
4(455, 160, 320, 3)
16686/20000 [=======================>.....] - ETA: 14s - loss: 0.018
4(468, 160, 320, 3)
17145/20000 [========================>.....] - ETA: 12s - loss: 0.018
4(460, 160, 320, 3)
17600/20000 [=========================>....] - ETA: 10s - loss: 0.018
3(460, 160, 320, 3)
18057/20000 [==========================>...] - ETA: 8s - loss: 0.0183
```

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 (467, 160, 320, 3)
18520/20000 [==========================>...] - ETA: 6s - loss: 0.0184
(458, 160, 320, 3)
18981/20000 [===========================>..] - ETA: 4s - loss: 0.0183
(462, 160, 320, 3)
19440/20000 [============================>.] - ETA: 2s - loss: 0.0183
(467, 160, 320, 3)
19905/20000 [============================>.] - ETA: 0s - loss: 0.0183
(467, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00013: saving model to Nvidias-check-13-0.0110.hdf5
20366/20000 [==============================] - 92s - loss: 0.0182 - v
al_loss: 0.0110
Epoch 15/25
(454, 160, 320, 3)
  451/20000 [..............................] - ETA: 80s - loss: 0.018
4(465, 160, 320, 3)
  906/20000 [>.............................] - ETA: 78s - loss: 0.016
5(465, 160, 320, 3)
 1374/20000 [=>............................] - ETA: 75s - loss: 0.016
2(460, 160, 320, 3)
 1834/20000 [=>............................] - ETA: 73s - loss: 0.016
2(463, 160, 320, 3)
 2294/20000 [==>...........................] - ETA: 70s - loss: 0.016
6(441, 160, 320, 3)
 2761/20000 [===>..........................] - ETA: 72s - loss: 0.016
6(459, 160, 320, 3)
 3219/20000 [===>..........................] - ETA: 69s - loss: 0.017
2(467, 160, 320, 3)
 3681/20000 [====>.........................] - ETA: 69s - loss: 0.017
5(466, 160, 320, 3)
```

```
 4148/20000 [=====>.......................] - ETA: 67s - loss: 0.017
9(469, 160, 320, 3)
 4615/20000 [=====>.......................] - ETA: 65s - loss: 0.017
9(457, 160, 320, 3)
 5069/20000 [======>......................] - ETA: 64s - loss: 0.018
0(460, 160, 320, 3)
 5534/20000 [=======>.....................] - ETA: 62s - loss: 0.018
4(460, 160, 320, 3)
 5999/20000 [=======>.....................] - ETA: 61s - loss: 0.018
0(446, 160, 320, 3)
 6459/20000 [========>.....................] - ETA: 58s - loss: 0.018
0(465, 160, 320, 3)
 6922/20000 [=========>.....................] - ETA: 56s - loss: 0.018
3(462, 160, 320, 3)
 7363/20000 [==========>.....................] - ETA: 54s - loss: 0.018
2(451, 160, 320, 3)
 7822/20000 [==========>.....................] - ETA: 52s - loss: 0.018
1(466, 160, 320, 3)
 8289/20000 [===========>.....................] - ETA: 50s - loss: 0.018
0(462, 160, 320, 3)
 8755/20000 [============>.....................] - ETA: 47s - loss: 0.018
2(475, 160, 320, 3)
 9224/20000 [============>.....................] - ETA: 45s - loss: 0.018
2(454, 160, 320, 3)
 9681/20000 [=============>.....................] - ETA: 43s - loss: 0.018
0(461, 160, 320, 3)
10141/20000 [==============>.....................] - ETA: 41s - loss: 0.017
9(455, 160, 320, 3)
10601/20000 [==============>.....................] - ETA: 39s - loss: 0.017
8(460, 160, 320, 3)
11047/20000 [===============>.....................] - ETA: 37s - loss: 0.017
9(100, 160, 320, 3)
11512/20000 [================>.....................] - ETA: 35s - loss: 0.017
9(467, 160, 320, 3)
11974/20000 [================>.....................] - ETA: 33s - loss: 0.017
8(458, 160, 320, 3)
12425/20000 [=================>.....................] - ETA: 31s - loss: 0.017
7(462, 160, 320, 3)
12891/20000 [==================>.....................] - ETA: 29s - loss: 0.017
9(462, 160, 320, 3)
13353/20000 [==================>.....................] - ETA: 27s - loss: 0.018
2(455, 160, 320, 3)
13828/20000 [===================>.....................] - ETA: 25s - loss: 0.018
3(467, 160, 320, 3)
14282/20000 [====================>.....................] - ETA: 23s - loss: 0.018
2(457, 160, 320, 3)
14743/20000 [====================>.....................] - ETA: 22s - loss: 0.018
4(467, 160, 320, 3)
15198/20000 [=====================>.....................] - ETA: 20s - loss: 0.018
3(453, 160, 320, 3)
15758/20000 [======================>.....................] - ETA: 17s - loss: 0.018
3(469, 160, 320, 3)
(466, 160, 320, 3)
16225/20000 [=======================>.....................] - ETA: 15s - loss: 0.018
3(455, 160, 320, 3)
16683/20000 [========================>.....................] - ETA: 13s - loss: 0.018
3(460, 160, 320, 3)
```

```
17145/20000 [=======================>.....] - ETA: 12s - loss: 0.018
2(454, 160, 320, 3)
17607/20000 [=======================>....] - ETA: 10s - loss: 0.018
2(460, 160, 320, 3)
18062/20000 [========================>...] - ETA: 8s - loss: 0.0182
 (472, 160, 320, 3)
18529/20000 [========================>...] - ETA: 6s - loss: 0.0181
(461, 160, 320, 3)
18986/20000 [=========================>..] - ETA: 4s - loss: 0.0181
(460, 160, 320, 3)
19453/20000 [=========================>.] - ETA: 2s - loss: 0.0182
(462, 160, 320, 3)
19906/20000 [=========================>.] - ETA: 0s - loss: 0.0182
(465, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00014: saving model to Nvidias-check-14-0.0103.hdf5
20375/20000 [==============================] - 92s - loss: 0.0181 - v
al_loss: 0.0103
Epoch 16/25
(451, 160, 320, 3)
  466/20000 [..............................] - ETA: 80s - loss: 0.016
5(468, 160, 320, 3)
  921/20000 [>.............................] - ETA: 77s - loss: 0.017
4(456, 160, 320, 3)
 1381/20000 [=>............................] - ETA: 75s - loss: 0.017
9(452, 160, 320, 3)
 1835/20000 [=>............................] - ETA: 73s - loss: 0.017
8(468, 160, 320, 3)
 2295/20000 [==>...........................] - ETA: 72s - loss: 0.018
3(462, 160, 320, 3)
 2767/20000 [===>..........................] - ETA: 70s - loss: 0.017
```

```
5(462, 160, 320, 3)
 3228/20000 [===>..........................] - ETA: 68s - loss: 0.017
8(467, 160, 320, 3)
 3688/20000 [====>.........................] - ETA: 66s - loss: 0.017
3(460, 160, 320, 3)
 4150/20000 [=====>........................] - ETA: 64s - loss: 0.016
8(454, 160, 320, 3)
 4615/20000 [=====>........................] - ETA: 62s - loss: 0.016
8(469, 160, 320, 3)
 5066/20000 [======>.......................] - ETA: 60s - loss: 0.016
9(460, 160, 320, 3)
 5534/20000 [=======>......................] - ETA: 58s - loss: 0.016
7(470, 160, 320, 3)
 5990/20000 [=======>......................] - ETA: 56s - loss: 0.017
2(467, 160, 320, 3)
 6442/20000 [========>.....................] - ETA: 54s - loss: 0.017
4(461, 160, 320, 3)
 6910/20000 [=========>.....................] - ETA: 52s - loss: 0.017
5(459, 160, 320, 3)
 7372/20000 [==========>....................] - ETA: 50s - loss: 0.017
4(458, 160, 320, 3)
 7834/20000 [==========>....................] - ETA: 49s - loss: 0.017
5(464, 160, 320, 3)
 8301/20000 [===========>...................] - ETA: 47s - loss: 0.017
7(462, 160, 320, 3)
 8761/20000 [============>..................] - ETA: 45s - loss: 0.017
4(454, 160, 320, 3)
 9215/20000 [============>..................] - ETA: 43s - loss: 0.017
4(459, 160, 320, 3)
 9684/20000 [=============>.................] - ETA: 41s - loss: 0.017
7(458, 160, 320, 3)
10144/20000 [==============>................] - ETA: 39s - loss: 0.017
6(459, 160, 320, 3)
10614/20000 [==============>................] - ETA: 38s - loss: 0.017
5(454, 160, 320, 3)
11081/20000 [===============>...............] - ETA: 36s - loss: 0.017
4(448, 160, 320, 3)
11542/20000 [================>..............] - ETA: 34s - loss: 0.017
5(455, 160, 320, 3)
12001/20000 [=================>.............] - ETA: 32s - loss: 0.017
5(466, 160, 320, 3)
12459/20000 [=================>.............] - ETA: 30s - loss: 0.017
4(464, 160, 320, 3)
12923/20000 [==================>............] - ETA: 28s - loss: 0.017
3(458, 160, 320, 3)
13385/20000 [===================>...........] - ETA: 26s - loss: 0.017
3(461, 160, 320, 3)
13839/20000 [===================>...........] - ETA: 24s - loss: 0.017
4(105, 160, 320, 3)
14298/20000 [====================>..........] - ETA: 22s - loss: 0.017
4(452, 160, 320, 3)
14756/20000 [====================>..........] - ETA: 21s - loss: 0.017
4(472, 160, 320, 3)
15215/20000 [=====================>.........] - ETA: 19s - loss: 0.017
3(463, 160, 320, 3)
15669/20000 [======================>........] - ETA: 17s - loss: 0.017
3(455, 160, 320, 3)
```

```
16117/20000 [=====================>......] - ETA: 15s - loss: 0.017
6(455, 160, 320, 3)
16572/20000 [=====================>......] - ETA: 13s - loss: 0.017
6(468, 160, 320, 3)
17038/20000 [======================>.....] - ETA: 12s - loss: 0.017
7(458, 160, 320, 3)
17502/20000 [======================>....] - ETA: 10s - loss: 0.017
8(465, 160, 320, 3)
17960/20000 [======================>....] - ETA: 8s - loss: 0.0177
 (461, 160, 320, 3)
18526/20000 [=======================>...] - ETA: 6s - loss: 0.0177
(455, 160, 320, 3)
(460, 160, 320, 3)
18978/20000 [=======================>..] - ETA: 4s - loss: 0.0177
(470, 160, 320, 3)
19450/20000 [=======================>.] - ETA: 2s - loss: 0.0178
(464, 160, 320, 3)
19913/20000 [=======================>.] - ETA: 0s - loss: 0.0177
(461, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00015: saving model to Nvidias-check-15-0.0102.hdf5
20368/20000 [==============================] - 89s - loss: 0.0177 - v
al_loss: 0.0102
Epoch 17/25
(467, 160, 320, 3)
  455/20000 [..............................] - ETA: 80s - loss: 0.016
1(462, 160, 320, 3)
  923/20000 [>.............................] - ETA: 78s - loss: 0.014
8(460, 160, 320, 3)
 1381/20000 [=>............................] - ETA: 76s - loss: 0.015
8(465, 160, 320, 3)
```

```
 1846/20000 [=>............................] - ETA: 74s - loss: 0.017
0(461, 160, 320, 3)
 2307/20000 [==>...........................] - ETA: 71s - loss: 0.017
6(452, 160, 320, 3)
 2762/20000 [===>..........................] - ETA: 70s - loss: 0.017
3(472, 160, 320, 3)
 3222/20000 [===>..........................] - ETA: 68s - loss: 0.017
8(453, 160, 320, 3)
 3692/20000 [====>.........................] - ETA: 66s - loss: 0.017
9(460, 160, 320, 3)
 4156/20000 [=====>........................] - ETA: 64s - loss: 0.017
9(458, 160, 320, 3)
 4617/20000 [=====>........................] - ETA: 62s - loss: 0.017
9(451, 160, 320, 3)
 5084/20000 [======>.......................] - ETA: 60s - loss: 0.018
0(462, 160, 320, 3)
 5546/20000 [=======>......................] - ETA: 58s - loss: 0.017
7(458, 160, 320, 3)
 6006/20000 [========>.....................] - ETA: 56s - loss: 0.018
1(467, 160, 320, 3)
 6471/20000 [========>.....................] - ETA: 54s - loss: 0.018
0(454, 160, 320, 3)
 6932/20000 [=========>....................] - ETA: 52s - loss: 0.017
7(460, 160, 320, 3)
 7384/20000 [==========>...................] - ETA: 51s - loss: 0.017
6(455, 160, 320, 3)
 7856/20000 [==========>...................] - ETA: 49s - loss: 0.017
6(471, 160, 320, 3)
 8309/20000 [===========>..................] - ETA: 47s - loss: 0.017
6(458, 160, 320, 3)
 8769/20000 [============>.................] - ETA: 45s - loss: 0.017
8(464, 160, 320, 3)
 9227/20000 [============>.................] - ETA: 43s - loss: 0.017
9(457, 160, 320, 3)
 9678/20000 [=============>................] - ETA: 41s - loss: 0.017
9(460, 160, 320, 3)
10140/20000 [==============>...............] - ETA: 40s - loss: 0.017
8(458, 160, 320, 3)
10598/20000 [==============>...............] - ETA: 38s - loss: 0.018
0(464, 160, 320, 3)
11065/20000 [===============>..............] - ETA: 36s - loss: 0.018
1(460, 160, 320, 3)
11519/20000 [================>.............] - ETA: 34s - loss: 0.018
0(464, 160, 320, 3)
11979/20000 [================>.............] - ETA: 33s - loss: 0.018
0(470, 160, 320, 3)
12434/20000 [=================>............] - ETA: 31s - loss: 0.018
2(464, 160, 320, 3)
12905/20000 [==================>...........] - ETA: 29s - loss: 0.018
1(461, 160, 320, 3)
13363/20000 [==================>...........] - ETA: 27s - loss: 0.018
1(455, 160, 320, 3)
13827/20000 [===================>..........] - ETA: 25s - loss: 0.018
0(456, 160, 320, 3)
14284/20000 [====================>.........] - ETA: 23s - loss: 0.018
2(471, 160, 320, 3)
14744/20000 [====================>.........] - ETA: 21s - loss: 0.018
```

```
1(465, 160, 320, 3)
15202/20000 [=====================>........] - ETA: 20s - loss: 0.018
0(455, 160, 320, 3)
15666/20000 [======================>.......] - ETA: 18s - loss: 0.017
9(458, 160, 320, 3)
16126/20000 [======================>......] - ETA: 16s - loss: 0.018
0(462, 160, 320, 3)
16590/20000 [======================>......] - ETA: 14s - loss: 0.018
1(101, 160, 320, 3)
17060/20000 [=======================>.....] - ETA: 12s - loss: 0.018
1(469, 160, 320, 3)
17524/20000 [=======================>....] - ETA: 10s - loss: 0.018
1(469, 160, 320, 3)
17985/20000 [=======================>....] - ETA: 8s - loss: 0.0180
 (477, 160, 320, 3)
18440/20000 [========================>...] - ETA: 6s - loss: 0.0180
(464, 160, 320, 3)
18896/20000 [=========================>..] - ETA: 4s - loss: 0.0183
(463, 160, 320, 3)
19367/20000 [=========================>.] - ETA: 2s - loss: 0.0183
(470, 160, 320, 3)
19832/20000 [=========================>.] - ETA: 0s - loss: 0.0182
(452, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00016: saving model to Nvidias-check-16-0.0108.hdf5
20287/20000 [==============================] - 90s - loss: 0.0183 - v
al_loss: 0.0108
Epoch 18/25
(462, 160, 320, 3)
  458/20000 [..............................] - ETA: 87s - loss: 0.015
1(464, 160, 320, 3)
```

```
 1021/20000 [>.............................] - ETA: 83s - loss: 0.017
0(468, 160, 320, 3)
(457, 160, 320, 3)
 1490/20000 [=>............................] - ETA: 81s - loss: 0.018
2(460, 160, 320, 3)
 1959/20000 [=>............................] - ETA: 78s - loss: 0.017
9(468, 160, 320, 3)
 2436/20000 [==>...........................] - ETA: 75s - loss: 0.017
4(462, 160, 320, 3)
 2900/20000 [===>..........................] - ETA: 72s - loss: 0.017
5(461, 160, 320, 3)
 3363/20000 [====>.........................] - ETA: 70s - loss: 0.017
4(458, 160, 320, 3)
 3833/20000 [====>.........................] - ETA: 67s - loss: 0.016
9(464, 160, 320, 3)
 4285/20000 [=====>........................] - ETA: 65s - loss: 0.017
0(464, 160, 320, 3)
 4747/20000 [======>.......................] - ETA: 62s - loss: 0.017
6(458, 160, 320, 3)
 5211/20000 [======>.......................] - ETA: 60s - loss: 0.017
8(465, 160, 320, 3)
 5679/20000 [=======>......................] - ETA: 59s - loss: 0.017
6(467, 160, 320, 3)
 6136/20000 [========>.....................] - ETA: 57s - loss: 0.017
7(459, 160, 320, 3)
 6596/20000 [========>.....................] - ETA: 55s - loss: 0.017
8(460, 160, 320, 3)
 7064/20000 [=========>....................] - ETA: 53s - loss: 0.017
7(465, 160, 320, 3)
 7526/20000 [==========>...................] - ETA: 51s - loss: 0.017
7(455, 160, 320, 3)
 7987/20000 [==========>...................] - ETA: 49s - loss: 0.017
8(459, 160, 320, 3)
 8445/20000 [===========>..................] - ETA: 47s - loss: 0.017
8(460, 160, 320, 3)
 8909/20000 [============>.................] - ETA: 45s - loss: 0.017
9(458, 160, 320, 3)
 9373/20000 [=============>................] - ETA: 43s - loss: 0.017
9(453, 160, 320, 3)
 9831/20000 [=============>................] - ETA: 41s - loss: 0.017
7(453, 160, 320, 3)
10296/20000 [==============>...............] - ETA: 39s - loss: 0.017
6(469, 160, 320, 3)
10763/20000 [===============>..............] - ETA: 38s - loss: 0.017
6(459, 160, 320, 3)
11222/20000 [===============>..............] - ETA: 36s - loss: 0.017
5(463, 160, 320, 3)
11682/20000 [================>.............] - ETA: 34s - loss: 0.017
7(457, 160, 320, 3)
12147/20000 [=================>............] - ETA: 32s - loss: 0.017
7(452, 160, 320, 3)
12602/20000 [=================>............] - ETA: 30s - loss: 0.017
9(467, 160, 320, 3)
13061/20000 [==================>...........] - ETA: 28s - loss: 0.017
8(462, 160, 320, 3)
13521/20000 [===================>..........] - ETA: 26s - loss: 0.017
8(462, 160, 320, 3)
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13979/20000 [==================>.........] - ETA: 24s - loss: 0.018
0(466, 160, 320, 3)
14432/20000 [===================>........] - ETA: 22s - loss: 0.017
8(471, 160, 320, 3)
14885/20000 [====================>.......] - ETA: 21s - loss: 0.017
8(460, 160, 320, 3)
15354/20000 [====================>.......] - ETA: 19s - loss: 0.018
0(459, 160, 320, 3)
15813/20000 [====================>.......] - ETA: 17s - loss: 0.018
0(463, 160, 320, 3)
16276/20000 [=====================>......] - ETA: 15s - loss: 0.017
9(456, 160, 320, 3)
16733/20000 [=====================>......] - ETA: 13s - loss: 0.017
9(469, 160, 320, 3)
17185/20000 [======================>.....] - ETA: 11s - loss: 0.017
9(462, 160, 320, 3)
17652/20000 [======================>.....] - ETA: 9s - loss: 0.0179
 (467, 160, 320, 3)
18114/20000 [=======================>...] - ETA: 7s - loss: 0.0178
(465, 160, 320, 3)
18576/20000 [=======================>...] - ETA: 5s - loss: 0.0177
(454, 160, 320, 3)
19042/20000 [=======================>..] - ETA: 3s - loss: 0.0178
(459, 160, 320, 3)
19513/20000 [========================>.] - ETA: 2s - loss: 0.0179
(99, 160, 320, 3)
19973/20000 [========================>.] - ETA: 0s - loss: 0.0178
(469, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00017: saving model to Nvidias-check-17-0.0109.hdf5
20432/20000 [==============================] - 91s - loss: 0.0178 - v
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al_loss: 0.0109
Epoch 19/25
(457, 160, 320, 3)
  463/20000 [..............................] - ETA: 106s - loss: 0.01
56(466, 160, 320, 3)
  919/20000 [>.............................] - ETA: 88s - loss: 0.017
2 (460, 160, 320, 3)
 1388/20000 [=>............................] - ETA: 81s - loss: 0.020
8(469, 160, 320, 3)
 1850/20000 [=>............................] - ETA: 84s - loss: 0.020
4(462, 160, 320, 3)
 2317/20000 [==>...........................] - ETA: 79s - loss: 0.020
4(470, 160, 320, 3)
 2782/20000 [===>..........................] - ETA: 79s - loss: 0.021
0(457, 160, 320, 3)
 3236/20000 [===>..........................] - ETA: 75s - loss: 0.019
9(452, 160, 320, 3)
 3794/20000 [====>.........................] - ETA: 74s - loss: 0.019
6(463, 160, 320, 3)
(456, 160, 320, 3)
 4263/20000 [=====>........................] - ETA: 71s - loss: 0.019
9(464, 160, 320, 3)
 4720/20000 [======>.......................] - ETA: 68s - loss: 0.019
5(461, 160, 320, 3)
 5186/20000 [======>.......................] - ETA: 67s - loss: 0.019
0(464, 160, 320, 3)
 5646/20000 [=======>......................] - ETA: 64s - loss: 0.019
0(465, 160, 320, 3)
 6115/20000 [========>.....................] - ETA: 62s - loss: 0.018
5(461, 160, 320, 3)
 6577/20000 [========>.....................] - ETA: 60s - loss: 0.018
1(469, 160, 320, 3)
 7047/20000 [=========>....................] - ETA: 59s - loss: 0.018
0(464, 160, 320, 3)
 7504/20000 [==========>...................] - ETA: 56s - loss: 0.018
0(461, 160, 320, 3)
 7956/20000 [==========>...................] - ETA: 54s - loss: 0.018
1(456, 160, 320, 3)
 8419/20000 [===========>..................] - ETA: 51s - loss: 0.018
0(457, 160, 320, 3)
 8875/20000 [============>.................] - ETA: 49s - loss: 0.018
0(466, 160, 320, 3)
 9339/20000 [=============>................] - ETA: 47s - loss: 0.018
0(446, 160, 320, 3)
 9800/20000 [=============>................] - ETA: 45s - loss: 0.018
1(466, 160, 320, 3)
10264/20000 [==============>...............] - ETA: 42s - loss: 0.018
0(464, 160, 320, 3)
10729/20000 [===============>..............] - ETA: 40s - loss: 0.017
9(457, 160, 320, 3)
11190/20000 [===============>..............] - ETA: 38s - loss: 0.017
8(446, 160, 320, 3)
11659/20000 [================>.............] - ETA: 36s - loss: 0.017
8(454, 160, 320, 3)
12123/20000 [=================>............] - ETA: 34s - loss: 0.017
8(468, 160, 320, 3)
12584/20000 [=================>............] - ETA: 32s - loss: 0.017
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6(452, 160, 320, 3)
13040/20000 [==================>...........] - ETA: 30s - loss: 0.017
5(467, 160, 320, 3)
13497/20000 [==================>..........] - ETA: 28s - loss: 0.017
6(443, 160, 320, 3)
13963/20000 [==================>..........] - ETA: 26s - loss: 0.017
5(456, 160, 320, 3)
14409/20000 [====================>.........] - ETA: 24s - loss: 0.017
6(467, 160, 320, 3)
14875/20000 [====================>........] - ETA: 22s - loss: 0.017
6(458, 160, 320, 3)
15339/20000 [=====================>.......] - ETA: 20s - loss: 0.017
6(466, 160, 320, 3)
15796/20000 [=====================>.......] - ETA: 18s - loss: 0.017
6(462, 160, 320, 3)
16242/20000 [=====================>......] - ETA: 16s - loss: 0.017
6(451, 160, 320, 3)
16696/20000 [======================>.....] - ETA: 14s - loss: 0.017
6(462, 160, 320, 3)
17164/20000 [======================>.....] - ETA: 12s - loss: 0.017
5(458, 160, 320, 3)
17616/20000 [=======================>....] - ETA: 10s - loss: 0.017
5(467, 160, 320, 3)
18083/20000 [========================>...] - ETA: 8s - loss: 0.0177
 (463, 160, 320, 3)
18526/20000 [========================>...] - ETA: 6s - loss: 0.0176
(454, 160, 320, 3)
18982/20000 [=========================>..] - ETA: 4s - loss: 0.0175
(455, 160, 320, 3)
19449/20000 [=========================>.] - ETA: 2s - loss: 0.0175
(458, 160, 320, 3)
19907/20000 [=========================>.] - ETA: 0s - loss: 0.0177
(465, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00018: saving model to Nvidias-check-18-0.0113.hdf5
20373/20000 [==============================] - 96s - loss: 0.0177 - v
al_loss: 0.0113
Epoch 20/25
(460, 160, 320, 3)
  462/20000 [..............................] - ETA: 105s - loss: 0.01
57(465, 160, 320, 3)
  913/20000 [>.............................] - ETA: 88s - loss: 0.015
3 (462, 160, 320, 3)
 1375/20000 [=>............................] - ETA: 82s - loss: 0.016
2(455, 160, 320, 3)
 1833/20000 [=>............................] - ETA: 83s - loss: 0.018
0(101, 160, 320, 3)
 2300/20000 [==>...........................] - ETA: 78s - loss: 0.017
9(468, 160, 320, 3)
 2763/20000 [===>..........................] - ETA: 78s - loss: 0.018
2(457, 160, 320, 3)
 3217/20000 [===>..........................] - ETA: 75s - loss: 0.017
9(459, 160, 320, 3)
 3672/20000 [====>.........................] - ETA: 74s - loss: 0.017
9(464, 160, 320, 3)
 4130/20000 [=====>........................] - ETA: 71s - loss: 0.018
9(461, 160, 320, 3)
 4595/20000 [=====>........................] - ETA: 68s - loss: 0.018
9(468, 160, 320, 3)
 5055/20000 [======>.......................] - ETA: 66s - loss: 0.018
8(467, 160, 320, 3)
 5520/20000 [=======>......................] - ETA: 63s - loss: 0.019
2(459, 160, 320, 3)
 5982/20000 [=======>......................] - ETA: 61s - loss: 0.018
7(459, 160, 320, 3)
 6538/20000 [========>.....................] - ETA: 58s - loss: 0.018
6(458, 160, 320, 3)
(454, 160, 320, 3)
 7006/20000 [=========>....................] - ETA: 56s - loss: 0.018
6(466, 160, 320, 3)
 7463/20000 [==========>...................] - ETA: 54s - loss: 0.018
5(473, 160, 320, 3)
 7922/20000 [==========>...................] - ETA: 52s - loss: 0.018
3(473, 160, 320, 3)
 8386/20000 [===========>..................] - ETA: 50s - loss: 0.018
2(460, 160, 320, 3)
 8847/20000 [============>.................] - ETA: 48s - loss: 0.018
1(463, 160, 320, 3)
 9315/20000 [============>.................] - ETA: 46s - loss: 0.017
9(461, 160, 320, 3)
 9782/20000 [=============>................] - ETA: 44s - loss: 0.017
8(467, 160, 320, 3)
10241/20000 [==============>...............] - ETA: 42s - loss: 0.017
9(458, 160, 320, 3)
10700/20000 [===============>..............] - ETA: 39s - loss: 0.017
8(465, 160, 320, 3)
11158/20000 [===============>..............] - ETA: 37s - loss: 0.017
7(463, 160, 320, 3)
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11612/20000 [================>.............] - ETA: 35s - loss: 0.017
7(464, 160, 320, 3)
12078/20000 [=================>............] - ETA: 34s - loss: 0.017
8(462, 160, 320, 3)
12551/20000 [=================>............] - ETA: 32s - loss: 0.017
8(443, 160, 320, 3)
13024/20000 [==================>...........] - ETA: 29s - loss: 0.017
7(473, 160, 320, 3)
13484/20000 [==================>...........] - ETA: 28s - loss: 0.017
7(465, 160, 320, 3)
13947/20000 [===================>..........] - ETA: 26s - loss: 0.017
7(449, 160, 320, 3)
14408/20000 [===================>..........] - ETA: 24s - loss: 0.017
8(462, 160, 320, 3)
14875/20000 [====================>.........] - ETA: 22s - loss: 0.017
7(451, 160, 320, 3)
15333/20000 [====================>.........] - ETA: 20s - loss: 0.017
5(457, 160, 320, 3)
15798/20000 [=====================>........] - ETA: 18s - loss: 0.017
5(463, 160, 320, 3)
16261/20000 [=====================>........] - ETA: 16s - loss: 0.017
6(449, 160, 320, 3)
16725/20000 [======================>.......] - ETA: 14s - loss: 0.017
5(468, 160, 320, 3)
17187/20000 [======================>.......] - ETA: 12s - loss: 0.017
6(459, 160, 320, 3)
17630/20000 [=======================>......] - ETA: 10s - loss: 0.017
7(474, 160, 320, 3)
18103/20000 [=======================>......] - ETA: 8s - loss: 0.0178
 (467, 160, 320, 3)
18568/20000 [========================>.....] - ETA: 6s - loss: 0.0177
(449, 160, 320, 3)
19017/20000 [========================>.....] - ETA: 4s - loss: 0.0177
(460, 160, 320, 3)
19479/20000 [=========================>....] - ETA: 2s - loss: 0.0178
(471, 160, 320, 3)
19930/20000 [=========================>....] - ETA: 0s - loss: 0.0176
(467, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00019: saving model to Nvidias-check-19-0.0113.hdf5
20387/20000 [==============================] - 94s - loss: 0.0176 - v
al_loss: 0.0113
Epoch 21/25
(458, 160, 320, 3)
  463/20000 [..............................] - ETA: 102s - loss: 0.02
32(461, 160, 320, 3)
  912/20000 [>.............................] - ETA: 87s - loss: 0.019
8 (457, 160, 320, 3)
 1380/20000 [=>............................] - ETA: 89s - loss: 0.019
3(453, 160, 320, 3)
 1839/20000 [=>............................] - ETA: 83s - loss: 0.018
1(462, 160, 320, 3)
 2313/20000 [==>...........................] - ETA: 84s - loss: 0.018
8(460, 160, 320, 3)
 2780/20000 [===>..........................] - ETA: 79s - loss: 0.018
6(461, 160, 320, 3)
 3229/20000 [===>..........................] - ETA: 79s - loss: 0.017
9(470, 160, 320, 3)
 3689/20000 [====>.........................] - ETA: 75s - loss: 0.017
3(476, 160, 320, 3)
 4160/20000 [=====>........................] - ETA: 71s - loss: 0.017
5(443, 160, 320, 3)
 4627/20000 [=====>........................] - ETA: 71s - loss: 0.018
0(97, 160, 320, 3)
 5085/20000 [======>.......................] - ETA: 67s - loss: 0.018
1(456, 160, 320, 3)
 5546/20000 [=======>......................] - ETA: 66s - loss: 0.018
1(471, 160, 320, 3)
 6003/20000 [========>.....................] - ETA: 63s - loss: 0.017
8(463, 160, 320, 3)
 6456/20000 [========>.....................] - ETA: 61s - loss: 0.017
9(464, 160, 320, 3)
 6918/20000 [=========>....................] - ETA: 59s - loss: 0.018
7(459, 160, 320, 3)
 7378/20000 [==========>...................] - ETA: 56s - loss: 0.018
8(465, 160, 320, 3)
 7839/20000 [==========>...................] - ETA: 55s - loss: 0.018
7(457, 160, 320, 3)
 8309/20000 [===========>..................] - ETA: 52s - loss: 0.018
9(445, 160, 320, 3)
 8785/20000 [============>.................] - ETA: 51s - loss: 0.018
6(460, 160, 320, 3)
 9325/20000 [============>.................] - ETA: 48s - loss: 0.018
6(465, 160, 320, 3)
(464, 160, 320, 3)
 9781/20000 [=============>................] - ETA: 46s - loss: 0.018
7(455, 160, 320, 3)
10252/20000 [==============>...............] - ETA: 44s - loss: 0.018
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5(462, 160, 320, 3)
10715/20000 [===============>.............] - ETA: 42s - loss: 0.018
3(458, 160, 320, 3)
11179/20000 [===============>.............] - ETA: 40s - loss: 0.018
3(456, 160, 320, 3)
11638/20000 [================>............] - ETA: 38s - loss: 0.018
2(461, 160, 320, 3)
12103/20000 [=================>............] - ETA: 35s - loss: 0.018
1(474, 160, 320, 3)
12560/20000 [=================>............] - ETA: 33s - loss: 0.018
1(457, 160, 320, 3)
13005/20000 [==================>...........] - ETA: 31s - loss: 0.018
1(459, 160, 320, 3)
13465/20000 [==================>...........] - ETA: 29s - loss: 0.018
1(464, 160, 320, 3)
13930/20000 [==================>...........] - ETA: 27s - loss: 0.017
9(454, 160, 320, 3)
14394/20000 [===================>..........] - ETA: 25s - loss: 0.017
9(451, 160, 320, 3)
14849/20000 [====================>.........] - ETA: 23s - loss: 0.017
9(453, 160, 320, 3)
15311/20000 [====================>.........] - ETA: 21s - loss: 0.017
9(458, 160, 320, 3)
15769/20000 [=====================>........] - ETA: 19s - loss: 0.017
9(458, 160, 320, 3)
16225/20000 [======================>.......] - ETA: 17s - loss: 0.017
9(462, 160, 320, 3)
16686/20000 [======================>.......] - ETA: 15s - loss: 0.017
9(454, 160, 320, 3)
17160/20000 [=======================>......] - ETA: 13s - loss: 0.017
9(459, 160, 320, 3)
17617/20000 [=======================>......] - ETA: 10s - loss: 0.017
8(462, 160, 320, 3)
18076/20000 [========================>.....] - ETA: 8s - loss: 0.0177
 (470, 160, 320, 3)
18540/20000 [========================>.....] - ETA: 6s - loss: 0.0177
(457, 160, 320, 3)
18994/20000 [=========================>....] - ETA: 4s - loss: 0.0177
(462, 160, 320, 3)
19445/20000 [=========================>....] - ETA: 2s - loss: 0.0176
(459, 160, 320, 3)
19898/20000 [=========================>....] - ETA: 0s - loss: 0.0177
(464, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00020: saving model to Nvidias-check-20-0.0111.hdf5
20356/20000 [==============================] - 99s - loss: 0.0177 - v
al_loss: 0.0111
Epoch 22/25
(461, 160, 320, 3)
  458/20000 [..............................] - ETA: 74s - loss: 0.020
6(452, 160, 320, 3)
  920/20000 [>.............................] - ETA: 73s - loss: 0.018
7(466, 160, 320, 3)
 1374/20000 [=>............................] - ETA: 81s - loss: 0.018
7(450, 160, 320, 3)
 1833/20000 [=>............................] - ETA: 77s - loss: 0.018
9(465, 160, 320, 3)
 2295/20000 [==>...........................] - ETA: 79s - loss: 0.017
7(458, 160, 320, 3)
 2765/20000 [===>..........................] - ETA: 75s - loss: 0.017
5(452, 160, 320, 3)
 3222/20000 [===>..........................] - ETA: 75s - loss: 0.018
5(472, 160, 320, 3)
 3684/20000 [====>.........................] - ETA: 72s - loss: 0.018
1(454, 160, 320, 3)
 4143/20000 [=====>........................] - ETA: 69s - loss: 0.017
8(449, 160, 320, 3)
 4607/20000 [=====>........................] - ETA: 68s - loss: 0.017
7(456, 160, 320, 3)
 5068/20000 [======>.......................] - ETA: 65s - loss: 0.018
0(458, 160, 320, 3)
 5520/20000 [=======>......................] - ETA: 65s - loss: 0.018
1(460, 160, 320, 3)
 5986/20000 [=======>......................] - ETA: 62s - loss: 0.017
7(461, 160, 320, 3)
 6436/20000 [========>.....................] - ETA: 61s - loss: 0.017
5(454, 160, 320, 3)
 6901/20000 [=========>....................] - ETA: 58s - loss: 0.017
7(453, 160, 320, 3)
 7359/20000 [==========>...................] - ETA: 56s - loss: 0.017
8(102, 160, 320, 3)
 7811/20000 [==========>...................] - ETA: 54s - loss: 0.018
0(464, 160, 320, 3)
 8283/20000 [===========>..................] - ETA: 52s - loss: 0.017
9(456, 160, 320, 3)
 8737/20000 [============>.................] - ETA: 50s - loss: 0.017
8(462, 160, 320, 3)
 9186/20000 [============>.................] - ETA: 48s - loss: 0.017
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9(456, 160, 320, 3)
 9642/20000 [=============>................] - ETA: 46s - loss: 0.018
2(474, 160, 320, 3)
10100/20000 [==============>...............] - ETA: 44s - loss: 0.018
2(464, 160, 320, 3)
10560/20000 [==============>...............] - ETA: 42s - loss: 0.018
1(464, 160, 320, 3)
11021/20000 [===============>..............] - ETA: 40s - loss: 0.018
3(458, 160, 320, 3)
11475/20000 [================>.............] - ETA: 38s - loss: 0.018
1(460, 160, 320, 3)
12030/20000 [=================>............] - ETA: 36s - loss: 0.018
2(461, 160, 320, 3)
(456, 160, 320, 3)
12494/20000 [=================>............] - ETA: 34s - loss: 0.018
2(451, 160, 320, 3)
12950/20000 [==================>...........] - ETA: 31s - loss: 0.018
1(456, 160, 320, 3)
13412/20000 [===================>..........] - ETA: 29s - loss: 0.018
1(463, 160, 320, 3)
13868/20000 [===================>..........] - ETA: 27s - loss: 0.018
1(462, 160, 320, 3)
14342/20000 [====================>.........] - ETA: 25s - loss: 0.018
0(453, 160, 320, 3)
14806/20000 [====================>.........] - ETA: 23s - loss: 0.017
9(456, 160, 320, 3)
15270/20000 [=====================>........] - ETA: 21s - loss: 0.017
8(452, 160, 320, 3)
15728/20000 [=====================>........] - ETA: 19s - loss: 0.017
8(456, 160, 320, 3)
16188/20000 [======================>.......] - ETA: 17s - loss: 0.017
8(462, 160, 320, 3)
16649/20000 [======================>.......] - ETA: 15s - loss: 0.017
8(461, 160, 320, 3)
17105/20000 [=======================>......] - ETA: 13s - loss: 0.017
9(465, 160, 320, 3)
17556/20000 [=======================>......] - ETA: 10s - loss: 0.017
9(459, 160, 320, 3)
18012/20000 [========================>.....] - ETA: 8s - loss: 0.0178
 (452, 160, 320, 3)
18475/20000 [========================>.....] - ETA: 6s - loss: 0.0178
(470, 160, 320, 3)
18937/20000 [=========================>....] - ETA: 4s - loss: 0.0178
(454, 160, 320, 3)
19390/20000 [=========================>....] - ETA: 2s - loss: 0.0178
(449, 160, 320, 3)
19846/20000 [=========================>....] - ETA: 0s - loss: 0.0178
(464, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00021: saving model to Nvidias-check-21-0.0110.hdf5
20298/20000 [==============================] - 95s - loss: 0.0177 - v
al_loss: 0.0110
Epoch 23/25
(457, 160, 320, 3)
  456/20000 [..............................] - ETA: 74s - loss: 0.012
6(460, 160, 320, 3)
  918/20000 [>.............................] - ETA: 75s - loss: 0.013
3(467, 160, 320, 3)
 1379/20000 [=>............................] - ETA: 81s - loss: 0.014
8(456, 160, 320, 3)
 1844/20000 [=>............................] - ETA: 76s - loss: 0.014
8(459, 160, 320, 3)
 2303/20000 [==>...........................] - ETA: 78s - loss: 0.017
2(458, 160, 320, 3)
 2755/20000 [===>..........................] - ETA: 75s - loss: 0.017
3(460, 160, 320, 3)
 3225/20000 [===>..........................] - ETA: 71s - loss: 0.017
6(473, 160, 320, 3)
 3679/20000 [====>.........................] - ETA: 70s - loss: 0.017
4(455, 160, 320, 3)
 4128/20000 [=====>........................] - ETA: 69s - loss: 0.017
7(453, 160, 320, 3)
 4592/20000 [=====>........................] - ETA: 66s - loss: 0.017
7(474, 160, 320, 3)
 5049/20000 [======>.......................] - ETA: 65s - loss: 0.017
3(464, 160, 320, 3)
 5509/20000 [=======>......................] - ETA: 63s - loss: 0.017
3(455, 160, 320, 3)
 5976/20000 [=======>......................] - ETA: 62s - loss: 0.017
6(462, 160, 320, 3)
 6432/20000 [========>.....................] - ETA: 59s - loss: 0.017
7(453, 160, 320, 3)
 6891/20000 [=========>....................] - ETA: 57s - loss: 0.017
5(466, 160, 320, 3)
 7349/20000 [==========>...................] - ETA: 56s - loss: 0.017
3(456, 160, 320, 3)
 7809/20000 [==========>...................] - ETA: 53s - loss: 0.017
6(473, 160, 320, 3)
```

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 8282/20000 [===========>..................] - ETA: 51s - loss: 0.017
5(460, 160, 320, 3)
 8737/20000 [============>.................] - ETA: 49s - loss: 0.017
3(460, 160, 320, 3)
 9190/20000 [============>.................] - ETA: 47s - loss: 0.017
2(461, 160, 320, 3)
 9664/20000 [=============>................] - ETA: 44s - loss: 0.017
3(454, 160, 320, 3)
10128/20000 [=============>................] - ETA: 42s - loss: 0.017
4(102, 160, 320, 3)
10583/20000 [==============>...............] - ETA: 40s - loss: 0.017
4(451, 160, 320, 3)
11045/20000 [===============>..............] - ETA: 38s - loss: 0.017
4(475, 160, 320, 3)
11498/20000 [================>.............] - ETA: 36s - loss: 0.017
3(466, 160, 320, 3)
11964/20000 [================>.............] - ETA: 34s - loss: 0.017
5(465, 160, 320, 3)
12420/20000 [=================>............] - ETA: 32s - loss: 0.018
0(463, 160, 320, 3)
12893/20000 [==================>...........] - ETA: 30s - loss: 0.018
1(456, 160, 320, 3)
13353/20000 [==================>...........] - ETA: 28s - loss: 0.018
0(474, 160, 320, 3)
13813/20000 [===================>..........] - ETA: 26s - loss: 0.018
2(458, 160, 320, 3)
14274/20000 [====================>.........] - ETA: 24s - loss: 0.018
1(458, 160, 320, 3)
14830/20000 [=====================>........] - ETA: 21s - loss: 0.018
1(461, 160, 320, 3)
(455, 160, 320, 3)
15281/20000 [=====================>........] - ETA: 20s - loss: 0.018
1(462, 160, 320, 3)
15756/20000 [======================>.......] - ETA: 18s - loss: 0.018
1(463, 160, 320, 3)
16222/20000 [======================>.......] - ETA: 16s - loss: 0.018
0(462, 160, 320, 3)
16687/20000 [=======================>......] - ETA: 14s - loss: 0.018
0(460, 160, 320, 3)
17150/20000 [========================>.....] - ETA: 12s - loss: 0.017
9(461, 160, 320, 3)
17606/20000 [========================>.....] - ETA: 10s - loss: 0.017
8(451, 160, 320, 3)
18080/20000 [=========================>....] - ETA: 8s - loss: 0.0178
 (466, 160, 320, 3)
18538/20000 [=========================>....] - ETA: 6s - loss: 0.0178
(465, 160, 320, 3)
18996/20000 [==========================>...] - ETA: 4s - loss: 0.0178
(465, 160, 320, 3)
19457/20000 [==========================>...] - ETA: 2s - loss: 0.0178
(465, 160, 320, 3)
19912/20000 [==========================>...] - ETA: 0s - loss: 0.0178
(456, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
```

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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00022: saving model to Nvidias-check-22-0.0102.hdf5
20374/20000 [==============================] - 92s - loss: 0.0178 - v
al_loss: 0.0102
Epoch 24/25
(446, 160, 320, 3)
  463/20000 [..............................] - ETA: 75s - loss: 0.017
8(456, 160, 320, 3)
  925/20000 [>.............................] - ETA: 88s - loss: 0.017
6(456, 160, 320, 3)
 1385/20000 [=>............................] - ETA: 81s - loss: 0.017
7(459, 160, 320, 3)
 1846/20000 [=>............................] - ETA: 77s - loss: 0.016
7(454, 160, 320, 3)
 2297/20000 [==>...........................] - ETA: 79s - loss: 0.016
8(461, 160, 320, 3)
 2763/20000 [===>..........................] - ETA: 78s - loss: 0.016
6(472, 160, 320, 3)
 3228/20000 [===>..........................] - ETA: 75s - loss: 0.016
5(468, 160, 320, 3)
 3693/20000 [====>.........................] - ETA: 75s - loss: 0.016
4(458, 160, 320, 3)
 4158/20000 [=====>........................] - ETA: 71s - loss: 0.016
8(464, 160, 320, 3)
 4614/20000 [=====>........................] - ETA: 70s - loss: 0.016
4(472, 160, 320, 3)
 5060/20000 [======>.......................] - ETA: 67s - loss: 0.016
9(454, 160, 320, 3)
 5516/20000 [=======>......................] - ETA: 66s - loss: 0.017
0(451, 160, 320, 3)
 5972/20000 [=======>......................] - ETA: 63s - loss: 0.017
2(454, 160, 320, 3)
 6431/20000 [========>.....................] - ETA: 61s - loss: 0.017
1(467, 160, 320, 3)
 6885/20000 [=========>....................] - ETA: 59s - loss: 0.017
```

```
3(461, 160, 320, 3)
 7346/20000 [==========>..................] - ETA: 56s - loss: 0.017
4(458, 160, 320, 3)
 7818/20000 [==========>..................] - ETA: 55s - loss: 0.017
1(464, 160, 320, 3)
 8286/20000 [===========>.................] - ETA: 52s - loss: 0.017
1(460, 160, 320, 3)
 8744/20000 [============>................] - ETA: 51s - loss: 0.017
3(466, 160, 320, 3)
 9208/20000 [============>................] - ETA: 48s - loss: 0.017
2(463, 160, 320, 3)
 9680/20000 [=============>...............] - ETA: 46s - loss: 0.017
2(474, 160, 320, 3)
10134/20000 [==============>..............] - ETA: 44s - loss: 0.017
1(461, 160, 320, 3)
10585/20000 [==============>..............] - ETA: 42s - loss: 0.017
4(455, 160, 320, 3)
11039/20000 [===============>.............] - ETA: 40s - loss: 0.017
3(466, 160, 320, 3)
11506/20000 [================>............] - ETA: 38s - loss: 0.017
3(464, 160, 320, 3)
11967/20000 [================>............] - ETA: 35s - loss: 0.017
1(460, 160, 320, 3)
12425/20000 [=================>...........] - ETA: 33s - loss: 0.017
2(453, 160, 320, 3)
12889/20000 [==================>..........] - ETA: 31s - loss: 0.017
3(99, 160, 320, 3)
13349/20000 [==================>..........] - ETA: 29s - loss: 0.017
4(459, 160, 320, 3)
13815/20000 [===================>.........] - ETA: 27s - loss: 0.017
4(460, 160, 320, 3)
14278/20000 [====================>........] - ETA: 25s - loss: 0.017
4(462, 160, 320, 3)
14752/20000 [====================>........] - ETA: 23s - loss: 0.017
5(466, 160, 320, 3)
15213/20000 [=====================>.......] - ETA: 21s - loss: 0.017
8(453, 160, 320, 3)
15668/20000 [======================>......] - ETA: 19s - loss: 0.017
8(454, 160, 320, 3)
16134/20000 [======================>......] - ETA: 17s - loss: 0.017
7(460, 160, 320, 3)
16598/20000 [=======================>.....] - ETA: 14s - loss: 0.017
9(459, 160, 320, 3)
17058/20000 [========================>.....] - ETA: 12s - loss: 0.017
8(460, 160, 320, 3)
17610/20000 [========================>....] - ETA: 10s - loss: 0.017
8(466, 160, 320, 3)
(460, 160, 320, 3)
18069/20000 [=========================>...] - ETA: 8s - loss: 0.0179
 (460, 160, 320, 3)
18529/20000 [=========================>...] - ETA: 6s - loss: 0.0178
(456, 160, 320, 3)
18991/20000 [==========================>..] - ETA: 4s - loss: 0.0178
(454, 160, 320, 3)
19457/20000 [==========================>.] - ETA: 2s - loss: 0.0178
(468, 160, 320, 3)
19910/20000 [==========================>.] - ETA: 0s - loss: 0.0178
```

```
(461, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00023: saving model to Nvidias-check-23-0.0101.hdf5
20364/20000 [==============================] - 95s - loss: 0.0177 - v
al_loss: 0.0101
Epoch 25/25
(467, 160, 320, 3)
  460/20000 [..............................] - ETA: 80s - loss: 0.018
1(455, 160, 320, 3)
  919/20000 [>.............................] - ETA: 79s - loss: 0.019
8(460, 160, 320, 3)
 1379/20000 [=>............................] - ETA: 77s - loss: 0.019
4(457, 160, 320, 3)
 1845/20000 [=>............................] - ETA: 74s - loss: 0.018
8(445, 160, 320, 3)
 2305/20000 [==>...........................] - ETA: 72s - loss: 0.019
1(461, 160, 320, 3)
 2765/20000 [===>..........................] - ETA: 69s - loss: 0.019
3(468, 160, 320, 3)
 3221/20000 [===>..........................] - ETA: 67s - loss: 0.018
8(449, 160, 320, 3)
 3675/20000 [====>.........................] - ETA: 65s - loss: 0.018
7(457, 160, 320, 3)
 4143/20000 [=====>........................] - ETA: 65s - loss: 0.018
7(470, 160, 320, 3)
 4604/20000 [=====>........................] - ETA: 63s - loss: 0.018
3(463, 160, 320, 3)
 5071/20000 [======>.......................] - ETA: 61s - loss: 0.018
5(464, 160, 320, 3)
 5526/20000 [=======>......................] - ETA: 59s - loss: 0.018
2(459, 160, 320, 3)
```

```
 5986/20000 [=======>......................] - ETA: 58s - loss: 0.017
9(460, 160, 320, 3)
 6443/20000 [========>.....................] - ETA: 56s - loss: 0.017
7(465, 160, 320, 3)
 6888/20000 [=========>....................] - ETA: 55s - loss: 0.017
6(452, 160, 320, 3)
 7349/20000 [==========>...................] - ETA: 53s - loss: 0.017
4(460, 160, 320, 3)
 7817/20000 [==========>...................] - ETA: 52s - loss: 0.017
7(456, 160, 320, 3)
 8266/20000 [===========>..................] - ETA: 50s - loss: 0.017
8(465, 160, 320, 3)
 8723/20000 [============>.................] - ETA: 48s - loss: 0.017
8(459, 160, 320, 3)
 9193/20000 [============>.................] - ETA: 46s - loss: 0.017
7(464, 160, 320, 3)
 9656/20000 [=============>................] - ETA: 44s - loss: 0.017
6(466, 160, 320, 3)
10120/20000 [==============>...............] - ETA: 41s - loss: 0.017
8(462, 160, 320, 3)
10579/20000 [==============>...............] - ETA: 39s - loss: 0.017
6(467, 160, 320, 3)
11039/20000 [===============>..............] - ETA: 37s - loss: 0.017
6(457, 160, 320, 3)
11504/20000 [================>.............] - ETA: 35s - loss: 0.017
8(467, 160, 320, 3)
11956/20000 [================>.............] - ETA: 33s - loss: 0.017
8(466, 160, 320, 3)
12416/20000 [=================>............] - ETA: 31s - loss: 0.017
7(457, 160, 320, 3)
12872/20000 [==================>...........] - ETA: 30s - loss: 0.017
6(454, 160, 320, 3)
13337/20000 [===================>..........] - ETA: 28s - loss: 0.017
9(461, 160, 320, 3)
13796/20000 [===================>..........] - ETA: 26s - loss: 0.017
8(467, 160, 320, 3)
14260/20000 [====================>.........] - ETA: 24s - loss: 0.017
7(462, 160, 320, 3)
14726/20000 [=====================>........] - ETA: 22s - loss: 0.017
6(467, 160, 320, 3)
15188/20000 [=====================>........] - ETA: 20s - loss: 0.017
6(461, 160, 320, 3)
15655/20000 [======================>.......] - ETA: 18s - loss: 0.017
8(99, 160, 320, 3)
16112/20000 [=======================>......] - ETA: 16s - loss: 0.017
7(468, 160, 320, 3)
16579/20000 [=======================>......] - ETA: 14s - loss: 0.017
7(462, 160, 320, 3)
17045/20000 [========================>.....] - ETA: 12s - loss: 0.017
6(460, 160, 320, 3)
17502/20000 [========================>.....] - ETA: 10s - loss: 0.017
7(465, 160, 320, 3)
17956/20000 [=========================>....] - ETA: 8s - loss: 0.0179
 (466, 160, 320, 3)
18417/20000 [==========================>...] - ETA: 6s - loss: 0.0180
(470, 160, 320, 3)
18884/20000 [==========================>..] - ETA: 4s - loss: 0.0179
```

```
(469, 160, 320, 3)
19346/20000 [============================>.] - ETA: 2s - loss: 0.0180
(457, 160, 320, 3)
19813/20000 [============================>.] - ETA: 0s - loss: 0.0179
(457, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(72, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00024: saving model to Nvidias-check-24-0.0108.hdf5
20274/20000 [==============================] - 89s - loss: 0.0180 - v
al_loss: 0.0108
```

In [66]:
```
#Plot losses
import matplotlib.pyplot as plt

print(history_object.history.keys())
plt.plot(history_object.history['loss'])
plt.plot(history_object.history['val_loss'])

plt.title('model loss')
plt.ylabel('loss')
plt.xlabel('epoch')
plt.legend(['train', 'test'], loc='upper left')
plt.show()
```

```
---------------------------------------------------------------------
------
NameError                                 Traceback (most recent call
 last)
<ipython-input-66-5e5236275ae6> in <module>()
      2 import matplotlib.pyplot as plt
      3
----> 4 print(history_object.history.keys())
      5 plt.plot(history_object.history['loss'])
      6 plt.plot(history_object.history['val_loss'])

NameError: name 'history_object' is not defined
```

In [62]:
```
# go one level up to save final model
model_json = model.to_json()
with open("model_final.json", "w") as json_file:
    json_file.write(model_json)


model.save("model_final.h5")
print("Saved model to disk")
```

```
Saved model to disk
```

Added more data to training using simulator as car goes outside track after crossing bridge. Also added logic to add equal data of images having steering angle less than .2 and images having steering angle more than .2 so that car is able to run properly in sharp turning roads.

In [20]:
```
from keras.models import load_model
import h5py
```

In [21]:
```
f = h5py.File("model_final.h5", mode='r')
```

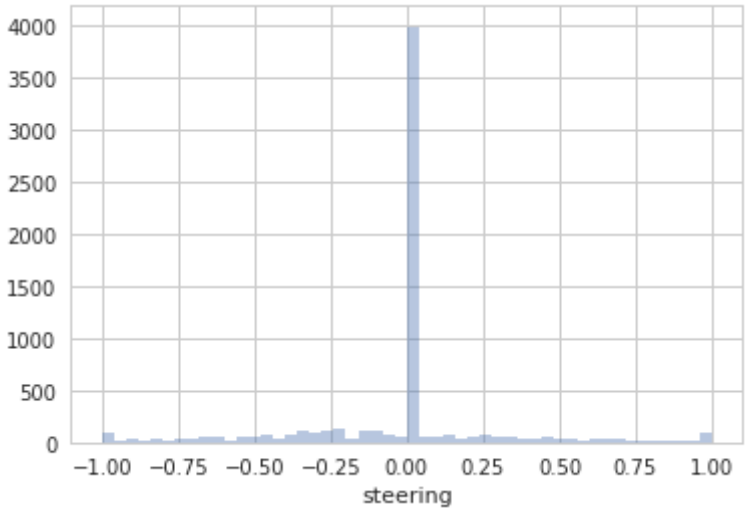
In [22]:
```
model = load_model("model_final.h5")
print(model)
```

```
<keras.models.Sequential object at 0x7f5212d6d780>
```

In [36]:
```
# Import as a dataframe and plot steering
df2 = pd.read_csv('/media/ashutosh/unix-extra1/udacity/udacitycCarND/
Behavioral Cloning/linux_sim/IMG/driving_log.csv', header=0)
df2.columns = ["center_image", "left_image", "right_image", "steerin
g", "throttle", "break", "speed"]
df2.drop(['throttle', 'break', 'speed'], axis = 1, inplace = True)

sns.set(style="whitegrid", color_codes=True)
sns.distplot(df2['steering'], kde = False)
```

Out[36]: <matplotlib.axes._subplots.AxesSubplot at 0x7f51cc0e1080>



In [48]:

```
# Start with train generator shared in the class and add image augmen
tations
def train_generator2(samples, batch_size=batch_size):
    num_samples = len(samples)
    print(num_samples)
    while 1: # Loop forever so the generator never terminates
        from sklearn.utils import shuffle
        shuffle(samples)
        for offset in range(0, num_samples, batch_size):
            batch_samples = samples[offset:offset+batch_size]
            straight_count=0
            images = []
            angles = []
            #print(batch_samples[0])
            # Read center, left and right images from a folder contai
ning Udacity data and my data
            for sample_index,batch_sample in
enumerate(batch_samples):
                cwd = os.getcwd()
                #print(cwd)
                #print(batch_sample)

                #print(batch_sample)
                center_angle = float(batch_sample[3])
                # Limit angles of less than absolute value of .1 to n
o more than 1/2 of data
                # to reduce bias of car driving straight
                if abs(center_angle) < .4:
                    straight_count += 1
                if straight_count > (batch_size * .3):
                    while abs(samples[sample_index][3]) < .4:
                        sample_index = random.randrange(len(samples))

                    batch_sample=samples[sample_index]

                center_name = batch_sample[0].strip()#.split('/')[-1]
                if Path(center_name).exists():
                    center_image = cv2.imread(center_name)
                else:
                    print("not Found:-"+str(center_name))
                    continue
                #print(center_image.shape)
                center_image = cv2.cvtColor(center_image, cv2.COLOR_B
GR2RGB)

                left_name = batch_sample[1].strip()#.split('/')[-1]
                if Path(left_name).exists():
                    left_image = cv2.imread(left_name)
                    left_image = cv2.cvtColor(left_image, cv2.COLOR_B
GR2RGB)
                else:
                    print("not Found:-"+str(left_name))
                    continue
                #left_image = cv2.cvtColor(left_image, cv2.COLOR_BGR2
RGB)

                right_name = batch_sample[2].strip()#.split('/')[-1]
```

```
                if Path(right_name).exists():
                    right_image = cv2.imread(right_name)
                    right_image = cv2.cvtColor(right_image, cv2.COLOR
_BGR2RGB)
                else:
                    print("not Found:-"+str(batch_sample))
                    continue
                #right_image = cv2.cvtColor(right_image, cv2.COLOR_BG
R2RGB)



                # Apply correction for left and right steering
                correction = 0.20
                left_angle = center_angle + correction
                right_angle = center_angle - correction

                # Randomly include either center, left or right image
                num = random.random()
                #print(num)
                if num <= 0.33:
                    select_image = center_image
                    select_angle = center_angle
                    images.append(select_image)
                    angles.append(select_angle)
                elif num>0.33 and num<=0.66:
                    select_image = left_image
                    select_angle = left_angle
                    images.append(select_image)
                    angles.append(select_angle)
                    #print(select_image)
                else:
                    select_image = right_image
                    select_angle = right_angle
                    images.append(select_image)
                    angles.append(select_angle)
                    #print(select_image)

                # Randomly horizontally flip selected images with 80%
 probability
                flip_image = np.fliplr(select_image)
                flip_angle = -1*select_angle
                images.append(flip_image)
                angles.append(flip_angle)

                # Augment with images of different brightness
                # Randomly select a percent change
                change_pct = random.uniform(0.4, 1.2)

                # Change to HSV to change the brightness V
                hsv = cv2.cvtColor(select_image, cv2.COLOR_RGB2HSV)

                hsv[:, :, 2] = hsv[:, :, 2] * change_pct
                # Convert back to RGB and append
                bright_img = cv2.cvtColor(hsv, cv2.COLOR_HSV2RGB)
                images.append(bright_img)
                angles.append(select_angle)
```

```
                ## Randomly shear image with 80% probability
                shear_range = 40
                rows, cols, ch = select_image.shape
                dx = np.random.randint(-shear_range, shear_range + 1)
                #    print('dx',dx)
                random_point = [cols / 2 + dx, rows / 2]
                pts1 = np.float32([[0, rows], [cols, rows], [cols /
2, rows / 2]])
                pts2 = np.float32([[0, rows], [cols, rows], random_po
int])
                dsteering = dx / (rows / 2) * 360 / (2 * np.pi *
25.0) / 10.0
                M = cv2.getAffineTransform(pts1, pts2)
                shear_image = cv2.warpAffine(center_image, M, (cols,
rows), borderMode=1)
                shear_angle = select_angle + dsteering
                images.append(shear_image)
                angles.append(shear_angle)

            # trim image to only see section with road
            X_train = np.array(images)
            y_train = np.array(angles)
            print(X_train.shape)
            yield shuffle(X_train, y_train)

def valid_generator2(samples, batch_size=batch_size):
        num_samples = len(samples)
        cwd = os.getcwd()
        print(cwd)
        while 1:  # Loop forever so the generator never terminates
            from sklearn.utils import shuffle
            shuffle(samples)
            for offset in range(0, num_samples, batch_size):
                batch_samples = samples[offset:offset + batch_size]

                images = []
                angles = []
                straight_count=0
                #Validation generator only has center images and no a
ugmentations
                for sample_index,batch_sample in enumerate(batch_samp
les):

                    center_angle = float(batch_sample[3])
                    # Limit angles of less than absolute value of .1
 to no more than 1/2 of data
                    # to reduce bias of car driving straight
                    if abs(center_angle) < .4:
                        straight_count += 1
                    if straight_count > (batch_size * .5):
                        while abs(batch_samples[sample_index][3]) <
.4:
                            sample_index = random.randrange(len(batch
_samples))
                        batch_sample=batch_samples[sample_index]
```

```
                    #print(batch_sample)
                    center_name =  batch_sample[0].strip()#.split
('/')[-1]
                    if Path(center_name).exists():
                        center_image = cv2.imread(center_name)
                    else:
                        print("not Found:-"+str(center_name))
                        continue

                    center_image = cv2.cvtColor(center_image, cv2.COL
OR_BGR2RGB)




                    images.append(center_image)
                    angles.append(center_angle)

                X_train = np.array(images)
                y_train = np.array(angles)
                print(X_train.shape)
                yield shuffle(X_train, y_train)
```

In [62]:
```
nb_epoch = 20
samples_per_epoch = 20000
nb_val_samples = 2000
```

In [63]:
```
dftoList2=df2.values.tolist()
train_samples2, validation_samples2 = train_test_split(dftoList2, tes
t_size=0.20)
training_generator2 = train_generator2(train_samples2, batch_size=bat
ch_size)
validation_generator2 = valid_generator2(validation_samples2, batch_s
ize=batch_size)
```

In [65]:
```
history_object2 = model.fit_generator(training_generator2, samples_per_epoch= samples_per_epoch,
                                      validation_data=validation_generator2,
                                      nb_val_samples=nb_val_samples, nb_epoch=nb_epoch, verbose=1, callbacks=callbacks_list)
```

```
Epoch 1/20
(512, 160, 320, 3)
(512, 160, 320, 3)
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 94s - loss: 0.094
0(512, 160, 320, 3)
(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 80s - loss: 0.099
7(512, 160, 320, 3)
(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 75s - loss: 0.102
9(512, 160, 320, 3)
(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 72s - loss: 0.098
4(512, 160, 320, 3)
(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 69s - loss: 0.098
4(512, 160, 320, 3)
(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 66s - loss: 0.098
9(512, 160, 320, 3)
(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 64s - loss: 0.098
4(512, 160, 320, 3)
(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 61s - loss: 0.099
6(512, 160, 320, 3)
(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 59s - loss: 0.099
4(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 56s - loss: 0.098
1(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 54s - loss: 0.098
4(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 52s - loss: 0.095
2(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 50s - loss: 0.096
6(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 47s - loss: 0.096
9(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 45s - loss: 0.097
6(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 43s - loss: 0.097
3(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 41s - loss: 0.097
1(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 39s - loss: 0.096
5(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 37s - loss: 0.095
7(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 35s - loss: 0.094
7(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 33s - loss: 0.094
3(512, 160, 320, 3)
11264/20000 [===============>..............] - ETA: 32s - loss: 0.093
5(40, 160, 320, 3)
11776/20000 [================>.............] - ETA: 30s - loss: 0.094
```

```
0(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 28s - loss: 0.094
1(512, 160, 320, 3)
12800/20000 [==================>...........] - ETA: 26s - loss: 0.092
4(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 24s - loss: 0.091
8(512, 160, 320, 3)
13824/20000 [===================>..........] - ETA: 22s - loss: 0.094
3(512, 160, 320, 3)
14336/20000 [====================>.........] - ETA: 20s - loss: 0.094
4(512, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 18s - loss: 0.093
7(512, 160, 320, 3)
15360/20000 [=====================>.......] - ETA: 16s - loss: 0.094
3(512, 160, 320, 3)
15872/20000 [=====================>.......] - ETA: 15s - loss: 0.094
1(512, 160, 320, 3)
16424/20000 [======================>......] - ETA: 12s - loss: 0.095
9(512, 160, 320, 3)
(512, 160, 320, 3)
16936/20000 [======================>.....] - ETA: 11s - loss: 0.095
4(512, 160, 320, 3)
17448/20000 [=======================>....] - ETA: 9s - loss: 0.0958
 (512, 160, 320, 3)
17960/20000 [=======================>....] - ETA: 7s - loss: 0.0964
(512, 160, 320, 3)
18472/20000 [========================>...] - ETA: 5s - loss: 0.0969
(512, 160, 320, 3)
18984/20000 [========================>..] - ETA: 3s - loss: 0.0969
(512, 160, 320, 3)
19496/20000 [=========================>.] - ETA: 1s - loss: 0.0966
(512, 160, 320, 3)

/media/ashutosh/unix-extra1/anaconda3/envs/carnd-term1/lib/python3.5/
site-packages/keras/engine/training.py:1569: UserWarning: Epoch compr
ised more than `samples_per_epoch` samples, which might affect learni
ng results. Set `samples_per_epoch` correctly to avoid this warning.
  warnings.warn('Epoch comprised more than '
```

```
(128, 160, 320, 3)
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(3, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00000: saving model to Nvidias-check-00-0.0841.hdf5
20008/20000 [==============================] - 77s - loss: 0.0959 - v
al_loss: 0.0841
Epoch 2/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 73s - loss: 0.133
2(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 70s - loss: 0.114
0(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 67s - loss: 0.109
3(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 64s - loss: 0.109
6(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 62s - loss: 0.105
0(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 60s - loss: 0.103
1(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 59s - loss: 0.102
9(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 57s - loss: 0.101
2(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 56s - loss: 0.102
6(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 54s - loss: 0.102
4(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 52s - loss: 0.100
7(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 50s - loss: 0.100
7(512, 160, 320, 3)
```

```
 6656/20000 [========>.....................] - ETA: 48s - loss: 0.097
8(512, 160, 320, 3)
 7168/20000 [=========>.....................] - ETA: 46s - loss: 0.099
4(512, 160, 320, 3)
 7680/20000 [==========>.....................] - ETA: 44s - loss: 0.099
4(512, 160, 320, 3)
 8192/20000 [===========>.....................] - ETA: 42s - loss: 0.099
5(512, 160, 320, 3)
 8704/20000 [============>.....................] - ETA: 40s - loss: 0.098
8(512, 160, 320, 3)
 9216/20000 [============>.....................] - ETA: 39s - loss: 0.098
5(512, 160, 320, 3)
 9728/20000 [=============>.....................] - ETA: 37s - loss: 0.097
7(512, 160, 320, 3)
10240/20000 [==============>.....................] - ETA: 35s - loss: 0.097
1(512, 160, 320, 3)
10752/20000 [===============>.....................] - ETA: 33s - loss: 0.096
4(512, 160, 320, 3)
11264/20000 [===============>.....................] - ETA: 31s - loss: 0.095
8(512, 160, 320, 3)
11776/20000 [================>.....................] - ETA: 29s - loss: 0.095
4(40, 160, 320, 3)
12288/20000 [=================>.....................] - ETA: 27s - loss: 0.095
8(512, 160, 320, 3)
12800/20000 [==================>.....................] - ETA: 25s - loss: 0.095
9(512, 160, 320, 3)
13312/20000 [==================>.....................] - ETA: 24s - loss: 0.094
0(512, 160, 320, 3)
13824/20000 [===================>.....................] - ETA: 22s - loss: 0.093
2(512, 160, 320, 3)
14336/20000 [====================>.....................] - ETA: 20s - loss: 0.095
3(512, 160, 320, 3)
14848/20000 [=====================>.....................] - ETA: 18s - loss: 0.095
2(512, 160, 320, 3)
15360/20000 [======================>.....................] - ETA: 16s - loss: 0.094
4(512, 160, 320, 3)
15872/20000 [======================>.....................] - ETA: 15s - loss: 0.095
1(512, 160, 320, 3)
16384/20000 [=======================>.....................] - ETA: 13s - loss: 0.094
8(512, 160, 320, 3)
16936/20000 [========================>.....................] - ETA: 11s - loss: 0.096
4(512, 160, 320, 3)
(512, 160, 320, 3)
17448/20000 [=========================>.....................] - ETA: 9s - loss: 0.0960
 (512, 160, 320, 3)
17960/20000 [=========================>.....................] - ETA: 7s - loss: 0.0963
(512, 160, 320, 3)
18472/20000 [==========================>.....................] - ETA: 5s - loss: 0.0968
(512, 160, 320, 3)
18984/20000 [===========================>.....................] - ETA: 3s - loss: 0.0972
(512, 160, 320, 3)
19496/20000 [============================>.....................] - ETA: 1s - loss: 0.0973
(512, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
Epoch 00001: saving model to Nvidias-check-01-0.0918.hdf5
20008/20000 [==============================] - 79s - loss: 0.0970 - v
al_loss: 0.0918
Epoch 3/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 68s - loss: 0.069
4(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 79s - loss: 0.102
2(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 73s - loss: 0.099
0(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 74s - loss: 0.098
8(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 71s - loss: 0.101
1(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 67s - loss: 0.097
5(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 64s - loss: 0.097
3(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 62s - loss: 0.098
0(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 61s - loss: 0.096
5(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 58s - loss: 0.097
8(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 57s - loss: 0.098
6(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 55s - loss: 0.097
9(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 52s - loss: 0.097
9(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 51s - loss: 0.094
9(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 49s - loss: 0.096
```

```
0(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 46s - loss: 0.096
4(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 45s - loss: 0.097
2(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 43s - loss: 0.096
9(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 41s - loss: 0.097
2(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 39s - loss: 0.096
7(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 37s - loss: 0.095
8(512, 160, 320, 3)
11264/20000 [===============>..............] - ETA: 35s - loss: 0.095
4(512, 160, 320, 3)
11776/20000 [================>.............] - ETA: 33s - loss: 0.094
8(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 30s - loss: 0.094
4(40, 160, 320, 3)
12800/20000 [=================>............] - ETA: 28s - loss: 0.094
7(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 26s - loss: 0.094
9(512, 160, 320, 3)
13824/20000 [===================>..........] - ETA: 25s - loss: 0.093
2(512, 160, 320, 3)
14336/20000 [====================>.........] - ETA: 23s - loss: 0.092
5(512, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 21s - loss: 0.094
4(512, 160, 320, 3)
15360/20000 [=====================>........] - ETA: 18s - loss: 0.094
4(512, 160, 320, 3)
15872/20000 [=====================>........] - ETA: 16s - loss: 0.093
6(512, 160, 320, 3)
16384/20000 [======================>.......] - ETA: 14s - loss: 0.094
2(512, 160, 320, 3)
16896/20000 [======================>.......] - ETA: 12s - loss: 0.093
9(512, 160, 320, 3)
17448/20000 [=======================>......] - ETA: 10s - loss: 0.095
6(512, 160, 320, 3)
(512, 160, 320, 3)
17960/20000 [=======================>......] - ETA: 8s - loss: 0.0952
 (512, 160, 320, 3)
18472/20000 [========================>.....] - ETA: 6s - loss: 0.0955
(512, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0961
(512, 160, 320, 3)
19496/20000 [=========================>....] - ETA: 2s - loss: 0.0965
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00002: saving model to Nvidias-check-02-0.0910.hdf5
20008/20000 [==============================] - 87s - loss: 0.0967 - v
al_loss: 0.0910
Epoch 4/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 94s - loss: 0.087
0(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 79s - loss: 0.078
5(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 80s - loss: 0.096
9(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 75s - loss: 0.095
8(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 70s - loss: 0.096
8(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 67s - loss: 0.098
0(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 66s - loss: 0.095
3(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 64s - loss: 0.095
6(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 64s - loss: 0.096
2(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 61s - loss: 0.096
1(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 60s - loss: 0.097
1(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 57s - loss: 0.096
9(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 56s - loss: 0.096
3(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 53s - loss: 0.096
5(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 51s - loss: 0.093
7(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 49s - loss: 0.094
8(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 46s - loss: 0.095
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0(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 44s - loss: 0.095
4(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 42s - loss: 0.095
4(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 40s - loss: 0.095
8(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 37s - loss: 0.095
0(512, 160, 320, 3)
11264/20000 [===============>..............] - ETA: 35s - loss: 0.094
3(512, 160, 320, 3)
11776/20000 [================>.............] - ETA: 33s - loss: 0.093
7(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 31s - loss: 0.093
3(512, 160, 320, 3)
12800/20000 [=================>............] - ETA: 29s - loss: 0.092
9(40, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 27s - loss: 0.093
6(512, 160, 320, 3)
13824/20000 [==================>...........] - ETA: 25s - loss: 0.093
7(512, 160, 320, 3)
14336/20000 [===================>..........] - ETA: 23s - loss: 0.092
0(512, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 21s - loss: 0.091
5(512, 160, 320, 3)
15360/20000 [====================>.........] - ETA: 19s - loss: 0.093
5(512, 160, 320, 3)
15872/20000 [=====================>........] - ETA: 17s - loss: 0.093
6(512, 160, 320, 3)
16384/20000 [=====================>........] - ETA: 14s - loss: 0.093
0(512, 160, 320, 3)
16896/20000 [======================>.......] - ETA: 12s - loss: 0.093
6(512, 160, 320, 3)
17408/20000 [======================>.......] - ETA: 10s - loss: 0.093
3(512, 160, 320, 3)
17960/20000 [=======================>......] - ETA: 8s - loss: 0.0950
(512, 160, 320, 3)
(512, 160, 320, 3)
18472/20000 [=======================>......] - ETA: 6s - loss: 0.0947
(512, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0950
(512, 160, 320, 3)
19496/20000 [========================>.....] - ETA: 2s - loss: 0.0956
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00003: saving model to Nvidias-check-03-0.0895.hdf5
20008/20000 [==============================] - 87s - loss: 0.0960 - v
al_loss: 0.0895
Epoch 5/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 73s - loss: 0.098
9(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 71s - loss: 0.092
0(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 69s - loss: 0.083
8(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 67s - loss: 0.098
9(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 65s - loss: 0.097
5(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 62s - loss: 0.097
7(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 60s - loss: 0.098
9(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 60s - loss: 0.096
8(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 58s - loss: 0.096
5(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 56s - loss: 0.096
8(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 54s - loss: 0.096
2(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 53s - loss: 0.096
9(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 51s - loss: 0.096
9(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 49s - loss: 0.096
4(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 46s - loss: 0.096
7(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 44s - loss: 0.094
1(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 43s - loss: 0.095
4(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 41s - loss: 0.095
8(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 40s - loss: 0.096
1(512, 160, 320, 3)
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10240/20000 [==============>..............] - ETA: 37s - loss: 0.096
0(512, 160, 320, 3)
10752/20000 [===============>.............] - ETA: 36s - loss: 0.096
2(512, 160, 320, 3)
11264/20000 [===============>.............] - ETA: 34s - loss: 0.095
6(512, 160, 320, 3)
11776/20000 [================>............] - ETA: 32s - loss: 0.095
0(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 30s - loss: 0.094
6(512, 160, 320, 3)
12800/20000 [=================>............] - ETA: 28s - loss: 0.094
2(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 26s - loss: 0.093
9(40, 160, 320, 3)
13824/20000 [==================>...........] - ETA: 24s - loss: 0.094
0(512, 160, 320, 3)
14336/20000 [===================>..........] - ETA: 22s - loss: 0.093
9(512, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 20s - loss: 0.092
3(512, 160, 320, 3)
15360/20000 [====================>.........] - ETA: 18s - loss: 0.091
8(512, 160, 320, 3)
15872/20000 [=====================>........] - ETA: 16s - loss: 0.093
8(512, 160, 320, 3)
16384/20000 [=====================>........] - ETA: 14s - loss: 0.093
6(512, 160, 320, 3)
16896/20000 [======================>.......] - ETA: 12s - loss: 0.092
9(512, 160, 320, 3)
17408/20000 [======================>.......] - ETA: 10s - loss: 0.093
4(512, 160, 320, 3)
17920/20000 [=======================>......] - ETA: 8s - loss: 0.0932
 (512, 160, 320, 3)
18472/20000 [=======================>......] - ETA: 6s - loss: 0.0948
(512, 160, 320, 3)
(512, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0945
(512, 160, 320, 3)
19496/20000 [========================>.....] - ETA: 2s - loss: 0.0947
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00004: saving model to Nvidias-check-04-0.0826.hdf5
20008/20000 [==============================] - 86s - loss: 0.0953 - v
al_loss: 0.0826
Epoch 6/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 96s - loss: 0.111
3(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 79s - loss: 0.103
7(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 78s - loss: 0.099
1(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 75s - loss: 0.091
6(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 70s - loss: 0.100
4(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 67s - loss: 0.099
2(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 67s - loss: 0.099
6(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 64s - loss: 0.099
8(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 63s - loss: 0.097
4(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 60s - loss: 0.096
9(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 59s - loss: 0.096
9(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 56s - loss: 0.096
6(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 55s - loss: 0.097
5(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 53s - loss: 0.097
3(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 50s - loss: 0.096
9(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 47s - loss: 0.096
9(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 46s - loss: 0.094
6(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 44s - loss: 0.095
5(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 42s - loss: 0.095
6(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 40s - loss: 0.096
0(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 38s - loss: 0.095
6(512, 160, 320, 3)
```

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11264/20000 [===============>.............] - ETA: 35s - loss: 0.095
9(512, 160, 320, 3)
11776/20000 [================>.............] - ETA: 33s - loss: 0.095
2(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 31s - loss: 0.094
7(512, 160, 320, 3)
12800/20000 [=================>............] - ETA: 29s - loss: 0.094
2(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 27s - loss: 0.093
7(512, 160, 320, 3)
13824/20000 [==================>...........] - ETA: 25s - loss: 0.093
5(40, 160, 320, 3)
14336/20000 [===================>..........] - ETA: 23s - loss: 0.094
0(512, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 21s - loss: 0.093
9(512, 160, 320, 3)
15360/20000 [====================>.........] - ETA: 19s - loss: 0.092
4(512, 160, 320, 3)
15872/20000 [=====================>........] - ETA: 17s - loss: 0.091
8(512, 160, 320, 3)
16384/20000 [=====================>........] - ETA: 14s - loss: 0.093
6(512, 160, 320, 3)
16896/20000 [======================>.......] - ETA: 12s - loss: 0.093
5(512, 160, 320, 3)
17408/20000 [======================>.......] - ETA: 10s - loss: 0.093
0(512, 160, 320, 3)
17920/20000 [=======================>......] - ETA: 8s - loss: 0.0935
 (512, 160, 320, 3)
18432/20000 [=======================>......] - ETA: 6s - loss: 0.0932
(512, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0947
(512, 160, 320, 3)
(512, 160, 320, 3)
19496/20000 [========================>.....] - ETA: 2s - loss: 0.0944
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00005: saving model to Nvidias-check-05-0.0893.hdf5
20008/20000 [==============================] - 89s - loss: 0.0946 - v
al_loss: 0.0893
Epoch 7/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 69s - loss: 0.116
2(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 79s - loss: 0.113
0(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 73s - loss: 0.109
5(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 69s - loss: 0.104
2(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 71s - loss: 0.097
9(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 67s - loss: 0.103
7(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 67s - loss: 0.101
6(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 64s - loss: 0.101
6(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 64s - loss: 0.101
9(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 60s - loss: 0.100
0(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 58s - loss: 0.099
7(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 57s - loss: 0.099
7(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 55s - loss: 0.098
7(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 53s - loss: 0.099
8(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 50s - loss: 0.099
7(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 49s - loss: 0.098
9(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 46s - loss: 0.098
7(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 45s - loss: 0.096
3(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 42s - loss: 0.097
2(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 41s - loss: 0.097
2(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 38s - loss: 0.097
6(512, 160, 320, 3)
11264/20000 [===============>..............] - ETA: 36s - loss: 0.097
4(512, 160, 320, 3)
11776/20000 [================>.............] - ETA: 34s - loss: 0.097
3(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 32s - loss: 0.096
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6(512, 160, 320, 3)
12800/20000 [==================>...........] - ETA: 30s - loss: 0.095
9(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 27s - loss: 0.095
5(512, 160, 320, 3)
13824/20000 [===================>..........] - ETA: 25s - loss: 0.094
9(512, 160, 320, 3)
14336/20000 [===================>..........] - ETA: 23s - loss: 0.094
5(40, 160, 320, 3)
14848/20000 [====================>.........] - ETA: 21s - loss: 0.094
7(512, 160, 320, 3)
15360/20000 [====================>.........] - ETA: 19s - loss: 0.094
6(512, 160, 320, 3)
15872/20000 [====================>.........] - ETA: 17s - loss: 0.093
1(512, 160, 320, 3)
16384/20000 [=====================>........] - ETA: 15s - loss: 0.092
7(512, 160, 320, 3)
16896/20000 [=====================>........] - ETA: 12s - loss: 0.094
4(512, 160, 320, 3)
17408/20000 [======================>.......] - ETA: 10s - loss: 0.094
2(512, 160, 320, 3)
17920/20000 [======================>.......] - ETA: 8s - loss: 0.0936
 (512, 160, 320, 3)
18432/20000 [=======================>......] - ETA: 6s - loss: 0.0941
(512, 160, 320, 3)
18944/20000 [=======================>......] - ETA: 4s - loss: 0.0939
(512, 160, 320, 3)
19496/20000 [========================>.....] - ETA: 2s - loss: 0.0952
(512, 160, 320, 3)
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
Epoch 00006: saving model to Nvidias-check-06-0.0891.hdf5
20008/20000 [==============================] - 89s - loss: 0.0947 - v
al_loss: 0.0891
Epoch 8/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 85s - loss: 0.108
5(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 75s - loss: 0.113
8(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 80s - loss: 0.114
6(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 74s - loss: 0.110
7(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 75s - loss: 0.105
0(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 70s - loss: 0.099
3(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 69s - loss: 0.103
6(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 66s - loss: 0.102
3(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 66s - loss: 0.101
6(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 62s - loss: 0.101
7(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 59s - loss: 0.099
9(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 58s - loss: 0.099
3(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 55s - loss: 0.099
6(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 53s - loss: 0.098
8(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 51s - loss: 0.099
5(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 49s - loss: 0.099
6(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 47s - loss: 0.098
7(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 45s - loss: 0.098
7(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 43s - loss: 0.096
7(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 41s - loss: 0.097
4(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 38s - loss: 0.097
3(512, 160, 320, 3)
11264/20000 [===============>..............] - ETA: 36s - loss: 0.097
8(512, 160, 320, 3)
11776/20000 [================>.............] - ETA: 34s - loss: 0.097
5(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 32s - loss: 0.097
4(512, 160, 320, 3)
12800/20000 [==================>...........] - ETA: 29s - loss: 0.096
9(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 27s - loss: 0.096
```

```
4(512, 160, 320, 3)
13824/20000 [===================>.........] - ETA: 25s - loss: 0.095
7(512, 160, 320, 3)
14336/20000 [====================>........] - ETA: 23s - loss: 0.095
1(512, 160, 320, 3)
14848/20000 [====================>........] - ETA: 21s - loss: 0.094
6(40, 160, 320, 3)
15360/20000 [=====================>.......] - ETA: 19s - loss: 0.094
8(512, 160, 320, 3)
15872/20000 [=====================>.......] - ETA: 17s - loss: 0.094
9(512, 160, 320, 3)
16384/20000 [======================>......] - ETA: 15s - loss: 0.093
4(512, 160, 320, 3)
16896/20000 [======================>.....] - ETA: 13s - loss: 0.092
8(512, 160, 320, 3)
17408/20000 [=======================>....] - ETA: 10s - loss: 0.094
6(512, 160, 320, 3)
17920/20000 [=======================>....] - ETA: 8s - loss: 0.0945
 (512, 160, 320, 3)
18432/20000 [========================>...] - ETA: 6s - loss: 0.0938
(512, 160, 320, 3)
18944/20000 [========================>..] - ETA: 4s - loss: 0.0943
(512, 160, 320, 3)
19456/20000 [=========================>.] - ETA: 2s - loss: 0.0940
(512, 160, 320, 3)
19968/20000 [=========================>.] - ETA: 0s - loss: 0.0954
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00007: saving model to Nvidias-check-07-0.0940.hdf5
20008/20000 [==============================] - 89s - loss: 0.0952 - v
al_loss: 0.0940
```

```
Epoch 9/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 96s - loss: 0.081
6(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 93s - loss: 0.094
7(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 82s - loss: 0.101
4(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 82s - loss: 0.104
9(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 76s - loss: 0.103
8(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 72s - loss: 0.099
4(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 71s - loss: 0.095
1(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 67s - loss: 0.100
3(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 66s - loss: 0.099
1(512, 160, 320, 3)
 5120/20000 [======>.......................] - ETA: 63s - loss: 0.099
2(512, 160, 320, 3)
 5632/20000 [=======>......................] - ETA: 61s - loss: 0.099
8(512, 160, 320, 3)
 6144/20000 [========>.....................] - ETA: 58s - loss: 0.098
7(512, 160, 320, 3)
 6656/20000 [========>.....................] - ETA: 57s - loss: 0.098
6(512, 160, 320, 3)
 7168/20000 [=========>....................] - ETA: 54s - loss: 0.098
9(512, 160, 320, 3)
 7680/20000 [==========>...................] - ETA: 52s - loss: 0.098
5(512, 160, 320, 3)
 8192/20000 [===========>..................] - ETA: 50s - loss: 0.099
6(512, 160, 320, 3)
 8704/20000 [============>.................] - ETA: 48s - loss: 0.099
4(512, 160, 320, 3)
 9216/20000 [============>.................] - ETA: 45s - loss: 0.098
9(512, 160, 320, 3)
 9728/20000 [=============>................] - ETA: 43s - loss: 0.098
8(512, 160, 320, 3)
10240/20000 [==============>...............] - ETA: 41s - loss: 0.096
8(512, 160, 320, 3)
10752/20000 [===============>..............] - ETA: 39s - loss: 0.097
4(512, 160, 320, 3)
11264/20000 [===============>..............] - ETA: 37s - loss: 0.097
2(512, 160, 320, 3)
11776/20000 [================>.............] - ETA: 35s - loss: 0.097
5(512, 160, 320, 3)
12288/20000 [=================>............] - ETA: 32s - loss: 0.097
3(512, 160, 320, 3)
12800/20000 [==================>...........] - ETA: 30s - loss: 0.097
3(512, 160, 320, 3)
13312/20000 [==================>...........] - ETA: 28s - loss: 0.096
7(512, 160, 320, 3)
13824/20000 [===================>..........] - ETA: 26s - loss: 0.096
0(512, 160, 320, 3)
14336/20000 [====================>.........] - ETA: 24s - loss: 0.095
```

```
3(512, 160, 320, 3)
14848/20000 [=====================>........] - ETA: 21s - loss: 0.094
7(512, 160, 320, 3)
15360/20000 [=====================>.......] - ETA: 19s - loss: 0.094
2(40, 160, 320, 3)
15872/20000 [=====================>.......] - ETA: 17s - loss: 0.094
4(512, 160, 320, 3)
16384/20000 [======================>......] - ETA: 15s - loss: 0.094
5(512, 160, 320, 3)
16896/20000 [======================>.....] - ETA: 13s - loss: 0.093
2(512, 160, 320, 3)
17408/20000 [=======================>....] - ETA: 10s - loss: 0.092
5(512, 160, 320, 3)
17920/20000 [=======================>....] - ETA: 8s - loss: 0.0940
 (512, 160, 320, 3)
18432/20000 [========================>...] - ETA: 6s - loss: 0.0939
(512, 160, 320, 3)
18944/20000 [========================>..] - ETA: 4s - loss: 0.0933
(512, 160, 320, 3)
19456/20000 [========================>.] - ETA: 2s - loss: 0.0937
(512, 160, 320, 3)
19968/20000 [========================>.] - ETA: 0s - loss: 0.0936
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00008: saving model to Nvidias-check-08-0.0841.hdf5
20480/20000 [==============================] - 91s - loss: 0.0950 - v
al_loss: 0.0841
Epoch 10/20
   40/20000 [..............................] - ETA: 287s - loss: 0.01
00(512, 160, 320, 3)
```

```
(512, 160, 320, 3)
  552/20000 [..............................] - ETA: 94s - loss: 0.078
1 (512, 160, 320, 3)
 1064/20000 [>.............................] - ETA: 94s - loss: 0.092
2(512, 160, 320, 3)
 1576/20000 [=>............................] - ETA: 83s - loss: 0.100
4(512, 160, 320, 3)
 2088/20000 [==>...........................] - ETA: 79s - loss: 0.104
1(512, 160, 320, 3)
 2600/20000 [==>...........................] - ETA: 76s - loss: 0.102
9(512, 160, 320, 3)
 3112/20000 [===>..........................] - ETA: 72s - loss: 0.100
6(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 71s - loss: 0.096
2(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 68s - loss: 0.100
9(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 67s - loss: 0.099
9(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 63s - loss: 0.100
2(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 62s - loss: 0.100
4(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 59s - loss: 0.098
6(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 57s - loss: 0.098
2(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 55s - loss: 0.098
1(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 53s - loss: 0.097
5(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 50s - loss: 0.098
3(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 49s - loss: 0.098
7(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 46s - loss: 0.097
9(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 43s - loss: 0.098
1(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 41s - loss: 0.096
0(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 39s - loss: 0.096
5(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 37s - loss: 0.096
4(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 34s - loss: 0.096
7(512, 160, 320, 3)
12328/20000 [=================>............] - ETA: 33s - loss: 0.096
4(512, 160, 320, 3)
12840/20000 [==================>...........] - ETA: 30s - loss: 0.096
6(512, 160, 320, 3)
13352/20000 [===================>..........] - ETA: 28s - loss: 0.096
2(512, 160, 320, 3)
13864/20000 [===================>..........] - ETA: 26s - loss: 0.095
7(512, 160, 320, 3)
14376/20000 [====================>.........] - ETA: 23s - loss: 0.094
8(512, 160, 320, 3)
```

```
14888/20000 [====================>........] - ETA: 21s - loss: 0.094
3(512, 160, 320, 3)
15400/20000 [=====================>.......] - ETA: 19s - loss: 0.093
8(40, 160, 320, 3)
15912/20000 [=====================>.......] - ETA: 17s - loss: 0.093
9(512, 160, 320, 3)
16424/20000 [======================>......] - ETA: 15s - loss: 0.093
8(512, 160, 320, 3)
16936/20000 [======================>......] - ETA: 13s - loss: 0.092
4(512, 160, 320, 3)
17448/20000 [=======================>....] - ETA: 10s - loss: 0.091
9(512, 160, 320, 3)
17960/20000 [=======================>....] - ETA: 8s - loss: 0.0935
 (512, 160, 320, 3)
18472/20000 [========================>...] - ETA: 6s - loss: 0.0934
(512, 160, 320, 3)
18984/20000 [========================>..] - ETA: 4s - loss: 0.0929
(512, 160, 320, 3)
19496/20000 [========================>.] - ETA: 2s - loss: 0.0933
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00009: saving model to Nvidias-check-09-0.0900.hdf5
20008/20000 [==============================] - 90s - loss: 0.0931 - v
al_loss: 0.0900
Epoch 11/20
(512, 160, 320, 3)
  552/20000 [..............................] - ETA: 70s - loss: 0.143
4(512, 160, 320, 3)
(512, 160, 320, 3)
 1064/20000 [>.............................] - ETA: 82s - loss: 0.112
1(512, 160, 320, 3)
```

```
 1576/20000 [=>............................] - ETA: 76s - loss: 0.108
9(512, 160, 320, 3)
 2088/20000 [==>...........................] - ETA: 72s - loss: 0.109
7(512, 160, 320, 3)
 2600/20000 [==>...........................] - ETA: 73s - loss: 0.109
0(512, 160, 320, 3)
 3112/20000 [===>..........................] - ETA: 73s - loss: 0.107
1(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 69s - loss: 0.103
8(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 68s - loss: 0.099
9(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 64s - loss: 0.103
3(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 63s - loss: 0.102
1(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 60s - loss: 0.102
0(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 57s - loss: 0.101
8(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 55s - loss: 0.100
1(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 53s - loss: 0.099
8(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 50s - loss: 0.099
6(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 49s - loss: 0.099
2(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 47s - loss: 0.099
8(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 45s - loss: 0.099
7(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 42s - loss: 0.099
3(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 40s - loss: 0.099
2(512, 160, 320, 3)
10792/20000 [==============>...............] - ETA: 38s - loss: 0.097
3(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 36s - loss: 0.097
9(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 34s - loss: 0.097
7(512, 160, 320, 3)
12328/20000 [================>.............] - ETA: 32s - loss: 0.097
9(512, 160, 320, 3)
12840/20000 [=================>............] - ETA: 30s - loss: 0.097
6(512, 160, 320, 3)
13352/20000 [=================>............] - ETA: 28s - loss: 0.097
7(512, 160, 320, 3)
13864/20000 [==================>...........] - ETA: 25s - loss: 0.097
3(512, 160, 320, 3)
14376/20000 [==================>...........] - ETA: 23s - loss: 0.096
7(512, 160, 320, 3)
14888/20000 [===================>..........] - ETA: 21s - loss: 0.096
0(512, 160, 320, 3)
15400/20000 [====================>.........] - ETA: 19s - loss: 0.095
5(512, 160, 320, 3)
15912/20000 [====================>.........] - ETA: 17s - loss: 0.095
```

```
2(40, 160, 320, 3)
16424/20000 [=====================>......] - ETA: 14s - loss: 0.095
3(512, 160, 320, 3)
16936/20000 [======================>.....] - ETA: 12s - loss: 0.095
3(512, 160, 320, 3)
17448/20000 [======================>....] - ETA: 10s - loss: 0.093
9(512, 160, 320, 3)
17960/20000 [======================>....] - ETA: 8s - loss: 0.0933
 (512, 160, 320, 3)
18472/20000 [=======================>...] - ETA: 6s - loss: 0.0948
(512, 160, 320, 3)
18984/20000 [=======================>..] - ETA: 4s - loss: 0.0947
(512, 160, 320, 3)
19496/20000 [========================>.] - ETA: 2s - loss: 0.0940
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00010: saving model to Nvidias-check-10-0.0857.hdf5
20008/20000 [==============================] - 88s - loss: 0.0944 - v
al_loss: 0.0857
Epoch 12/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 72s - loss: 0.081
7(512, 160, 320, 3)
 1064/20000 [>.............................] - ETA: 73s - loss: 0.111
7(512, 160, 320, 3)
(512, 160, 320, 3)
 1576/20000 [=>............................] - ETA: 73s - loss: 0.101
4(512, 160, 320, 3)
 2088/20000 [==>...........................] - ETA: 72s - loss: 0.103
1(512, 160, 320, 3)
```

```
 2600/20000 [==>............................] - ETA: 71s - loss: 0.106
6(512, 160, 320, 3)
 3112/20000 [===>...........................] - ETA: 68s - loss: 0.107
7(512, 160, 320, 3)
 3624/20000 [====>..........................] - ETA: 65s - loss: 0.105
9(512, 160, 320, 3)
 4136/20000 [=====>.........................] - ETA: 64s - loss: 0.103
5(512, 160, 320, 3)
 4648/20000 [=====>.........................] - ETA: 62s - loss: 0.099
2(512, 160, 320, 3)
 5160/20000 [======>........................] - ETA: 61s - loss: 0.102
2(512, 160, 320, 3)
 5672/20000 [=======>.......................] - ETA: 58s - loss: 0.101
0(512, 160, 320, 3)
 6184/20000 [========>......................] - ETA: 56s - loss: 0.100
8(512, 160, 320, 3)
 6696/20000 [=========>.....................] - ETA: 55s - loss: 0.101
3(512, 160, 320, 3)
 7208/20000 [=========>.....................] - ETA: 52s - loss: 0.099
7(512, 160, 320, 3)
 7720/20000 [==========>....................] - ETA: 49s - loss: 0.099
4(512, 160, 320, 3)
 8232/20000 [===========>...................] - ETA: 49s - loss: 0.099
7(512, 160, 320, 3)
 8744/20000 [============>..................] - ETA: 46s - loss: 0.099
3(512, 160, 320, 3)
 9256/20000 [============>..................] - ETA: 45s - loss: 0.099
8(512, 160, 320, 3)
 9768/20000 [=============>.................] - ETA: 42s - loss: 0.099
5(512, 160, 320, 3)
10280/20000 [==============>................] - ETA: 41s - loss: 0.098
9(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 38s - loss: 0.098
9(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 36s - loss: 0.096
9(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 34s - loss: 0.097
2(512, 160, 320, 3)
12328/20000 [=================>............] - ETA: 32s - loss: 0.096
9(512, 160, 320, 3)
12840/20000 [==================>...........] - ETA: 30s - loss: 0.097
2(512, 160, 320, 3)
13352/20000 [==================>...........] - ETA: 27s - loss: 0.097
0(512, 160, 320, 3)
13864/20000 [===================>..........] - ETA: 25s - loss: 0.096
8(512, 160, 320, 3)
14376/20000 [====================>.........] - ETA: 23s - loss: 0.096
4(512, 160, 320, 3)
14888/20000 [====================>.........] - ETA: 21s - loss: 0.095
9(512, 160, 320, 3)
15400/20000 [=====================>........] - ETA: 19s - loss: 0.095
2(512, 160, 320, 3)
15912/20000 [=====================>........] - ETA: 17s - loss: 0.094
8(512, 160, 320, 3)
16424/20000 [======================>.......] - ETA: 15s - loss: 0.094
4(40, 160, 320, 3)
16936/20000 [======================>.......] - ETA: 12s - loss: 0.094
```

```
3(512, 160, 320, 3)
17448/20000 [=========================>....] - ETA: 10s - loss: 0.094
4(512, 160, 320, 3)
17960/20000 [=========================>....] - ETA: 8s - loss: 0.0932
 (512, 160, 320, 3)
18472/20000 [==========================>...] - ETA: 6s - loss: 0.0926
(512, 160, 320, 3)
18984/20000 [===========================>..] - ETA: 4s - loss: 0.0943
(512, 160, 320, 3)
19496/20000 [============================>.] - ETA: 2s - loss: 0.0942
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00011: saving model to Nvidias-check-11-0.0934.hdf5
20008/20000 [==============================] - 90s - loss: 0.0936 - v
al_loss: 0.0934
Epoch 13/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 96s - loss: 0.108
7(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 81s - loss: 0.093
9(512, 160, 320, 3)
 1576/20000 [=>............................] - ETA: 83s - loss: 0.112
1(512, 160, 320, 3)
(512, 160, 320, 3)
 2088/20000 [==>...........................] - ETA: 77s - loss: 0.103
9(512, 160, 320, 3)
 2600/20000 [==>...........................] - ETA: 77s - loss: 0.105
2(512, 160, 320, 3)
 3112/20000 [===>..........................] - ETA: 72s - loss: 0.106
2(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 70s - loss: 0.107
```

```
1(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 68s - loss: 0.106
1(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 67s - loss: 0.103
2(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 63s - loss: 0.100
2(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 62s - loss: 0.102
8(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 59s - loss: 0.101
9(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 56s - loss: 0.101
7(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 55s - loss: 0.101
4(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 52s - loss: 0.099
8(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 50s - loss: 0.099
1(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 48s - loss: 0.099
2(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 45s - loss: 0.098
9(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 43s - loss: 0.099
6(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 41s - loss: 0.099
6(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 39s - loss: 0.099
1(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 36s - loss: 0.099
0(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 34s - loss: 0.097
2(512, 160, 320, 3)
12328/20000 [=================>............] - ETA: 32s - loss: 0.097
8(512, 160, 320, 3)
12840/20000 [==================>...........] - ETA: 30s - loss: 0.097
6(512, 160, 320, 3)
13352/20000 [==================>...........] - ETA: 28s - loss: 0.097
8(512, 160, 320, 3)
13864/20000 [===================>..........] - ETA: 26s - loss: 0.097
7(512, 160, 320, 3)
14376/20000 [====================>.........] - ETA: 23s - loss: 0.097
6(512, 160, 320, 3)
14888/20000 [====================>.........] - ETA: 21s - loss: 0.096
9(512, 160, 320, 3)
15400/20000 [=====================>........] - ETA: 19s - loss: 0.096
2(512, 160, 320, 3)
15912/20000 [=====================>........] - ETA: 17s - loss: 0.095
6(512, 160, 320, 3)
16424/20000 [======================>.......] - ETA: 15s - loss: 0.095
0(512, 160, 320, 3)
16936/20000 [======================>.......] - ETA: 13s - loss: 0.094
7(40, 160, 320, 3)
17448/20000 [=======================>......] - ETA: 10s - loss: 0.095
0(512, 160, 320, 3)
17960/20000 [=======================>......] - ETA: 8s - loss: 0.0951
 (512, 160, 320, 3)
```

```
18472/20000 [==========================>...] - ETA: 6s - loss: 0.0938
(512, 160, 320, 3)
18984/20000 [===========================>..] - ETA: 4s - loss: 0.0933
(512, 160, 320, 3)
19496/20000 [============================>.] - ETA: 2s - loss: 0.0948
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00012: saving model to Nvidias-check-12-0.0839.hdf5
20008/20000 [==============================] - 90s - loss: 0.0947 - v
al_loss: 0.0839
Epoch 14/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 75s - loss: 0.070
2(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 71s - loss: 0.089
7(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 69s - loss: 0.087
1(512, 160, 320, 3)
 2088/20000 [==>...........................] - ETA: 67s - loss: 0.102
8(512, 160, 320, 3)
(512, 160, 320, 3)
 2600/20000 [==>...........................] - ETA: 66s - loss: 0.098
5(512, 160, 320, 3)
 3112/20000 [===>..........................] - ETA: 65s - loss: 0.099
9(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 63s - loss: 0.102
1(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 61s - loss: 0.103
3(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 59s - loss: 0.102
```

```
9(512, 160, 320, 3)
 5160/20000 [======>......................] - ETA: 57s - loss: 0.101
2(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 54s - loss: 0.098
4(512, 160, 320, 3)
 6184/20000 [========>......................] - ETA: 53s - loss: 0.101
1(512, 160, 320, 3)
 6696/20000 [=========>......................] - ETA: 51s - loss: 0.100
7(512, 160, 320, 3)
 7208/20000 [=========>......................] - ETA: 49s - loss: 0.100
8(512, 160, 320, 3)
 7720/20000 [==========>.....................] - ETA: 47s - loss: 0.100
8(512, 160, 320, 3)
 8232/20000 [===========>.....................] - ETA: 45s - loss: 0.099
4(512, 160, 320, 3)
 8744/20000 [============>.....................] - ETA: 44s - loss: 0.099
1(512, 160, 320, 3)
 9256/20000 [============>.....................] - ETA: 41s - loss: 0.099
5(512, 160, 320, 3)
 9768/20000 [=============>.....................] - ETA: 40s - loss: 0.099
0(512, 160, 320, 3)
10280/20000 [==============>.....................] - ETA: 38s - loss: 0.099
4(512, 160, 320, 3)
10792/20000 [===============>.....................] - ETA: 36s - loss: 0.099
4(512, 160, 320, 3)
11304/20000 [===============>.....................] - ETA: 34s - loss: 0.098
6(512, 160, 320, 3)
11816/20000 [================>.....................] - ETA: 32s - loss: 0.098
4(512, 160, 320, 3)
12328/20000 [=================>.....................] - ETA: 30s - loss: 0.096
7(512, 160, 320, 3)
12840/20000 [==================>.....................] - ETA: 28s - loss: 0.097
2(512, 160, 320, 3)
13352/20000 [==================>.....................] - ETA: 26s - loss: 0.097
0(512, 160, 320, 3)
13864/20000 [===================>.....................] - ETA: 24s - loss: 0.097
3(512, 160, 320, 3)
14376/20000 [====================>.....................] - ETA: 22s - loss: 0.097
2(512, 160, 320, 3)
14888/20000 [====================>.....................] - ETA: 20s - loss: 0.097
2(512, 160, 320, 3)
15400/20000 [=====================>.....................] - ETA: 18s - loss: 0.096
6(512, 160, 320, 3)
15912/20000 [=====================>.....................] - ETA: 16s - loss: 0.096
1(512, 160, 320, 3)
16424/20000 [======================>.....................] - ETA: 14s - loss: 0.095
5(512, 160, 320, 3)
16936/20000 [======================>.....................] - ETA: 12s - loss: 0.094
9(512, 160, 320, 3)
17448/20000 [=======================>.....................] - ETA: 10s - loss: 0.094
6(40, 160, 320, 3)
17960/20000 [=======================>.....................] - ETA: 8s - loss: 0.0946
 (512, 160, 320, 3)
18472/20000 [========================>.....................] - ETA: 6s - loss: 0.0946
(512, 160, 320, 3)
18984/20000 [========================>.....................] - ETA: 4s - loss: 0.0934
(512, 160, 320, 3)
```

```
19496/20000 [============================>.] - ETA: 2s - loss: 0.0928
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00013: saving model to Nvidias-check-13-0.0868.hdf5
20008/20000 [==============================] - 89s - loss: 0.0942 - v
al_loss: 0.0868
Epoch 15/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 98s - loss: 0.087
1(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 95s - loss: 0.076
3(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 84s - loss: 0.088
5(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 84s - loss: 0.087
2(512, 160, 320, 3)
 2600/20000 [==>...........................] - ETA: 79s - loss: 0.098
6(512, 160, 320, 3)
(512, 160, 320, 3)
 3112/20000 [===>..........................] - ETA: 78s - loss: 0.095
2(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 74s - loss: 0.096
5(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 71s - loss: 0.098
6(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 68s - loss: 0.100
3(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 65s - loss: 0.099
7(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 62s - loss: 0.098
2(512, 160, 320, 3)
```

```
 6184/20000 [========>.....................] - ETA: 59s - loss: 0.095
8(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 56s - loss: 0.098
0(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 54s - loss: 0.098
0(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 51s - loss: 0.098
2(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 49s - loss: 0.098
7(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 46s - loss: 0.097
8(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 44s - loss: 0.097
3(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 42s - loss: 0.097
6(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 39s - loss: 0.097
4(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 37s - loss: 0.097
9(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 35s - loss: 0.097
6(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 33s - loss: 0.097
0(512, 160, 320, 3)
12328/20000 [=================>............] - ETA: 31s - loss: 0.096
9(512, 160, 320, 3)
12840/20000 [==================>...........] - ETA: 29s - loss: 0.095
3(512, 160, 320, 3)
13352/20000 [==================>...........] - ETA: 27s - loss: 0.095
6(512, 160, 320, 3)
13864/20000 [===================>..........] - ETA: 25s - loss: 0.095
4(512, 160, 320, 3)
14376/20000 [====================>.........] - ETA: 23s - loss: 0.095
7(512, 160, 320, 3)
14888/20000 [====================>.........] - ETA: 20s - loss: 0.095
6(512, 160, 320, 3)
15400/20000 [=====================>........] - ETA: 18s - loss: 0.095
7(512, 160, 320, 3)
15912/20000 [=====================>........] - ETA: 16s - loss: 0.095
1(512, 160, 320, 3)
16424/20000 [======================>.......] - ETA: 14s - loss: 0.094
6(512, 160, 320, 3)
16936/20000 [======================>.......] - ETA: 12s - loss: 0.094
0(512, 160, 320, 3)
17448/20000 [=======================>......] - ETA: 10s - loss: 0.093
6(512, 160, 320, 3)
17960/20000 [=======================>......] - ETA: 8s - loss: 0.0932
 (40, 160, 320, 3)
18472/20000 [========================>.....] - ETA: 6s - loss: 0.0932
(512, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0931
(512, 160, 320, 3)
19496/20000 [=========================>....] - ETA: 2s - loss: 0.0920
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00014: saving model to Nvidias-check-14-0.0816.hdf5
20008/20000 [==============================] - 89s - loss: 0.0915 - v
al_loss: 0.0816
Epoch 16/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 69s - loss: 0.152
0(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 76s - loss: 0.118
8(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 75s - loss: 0.102
0(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 77s - loss: 0.103
8(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 72s - loss: 0.099
2(512, 160, 320, 3)
 3112/20000 [===>..........................] - ETA: 72s - loss: 0.106
4(512, 160, 320, 3)
(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 69s - loss: 0.102
8(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 68s - loss: 0.102
2(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 65s - loss: 0.103
5(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 64s - loss: 0.104
1(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 61s - loss: 0.103
1(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 58s - loss: 0.101
6(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 57s - loss: 0.099
6(512, 160, 320, 3)
```

```
 7208/20000 [=========>....................] - ETA: 54s - loss: 0.101
6(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 52s - loss: 0.100
7(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 50s - loss: 0.101
0(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 48s - loss: 0.101
3(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 45s - loss: 0.099
7(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 43s - loss: 0.099
2(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 41s - loss: 0.099
3(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 39s - loss: 0.098
6(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 37s - loss: 0.098
9(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 35s - loss: 0.098
8(512, 160, 320, 3)
12328/20000 [=================>............] - ETA: 32s - loss: 0.098
3(512, 160, 320, 3)
12840/20000 [=================>............] - ETA: 30s - loss: 0.098
2(512, 160, 320, 3)
13352/20000 [==================>...........] - ETA: 28s - loss: 0.096
6(512, 160, 320, 3)
13864/20000 [==================>...........] - ETA: 26s - loss: 0.097
0(512, 160, 320, 3)
14376/20000 [===================>..........] - ETA: 24s - loss: 0.096
9(512, 160, 320, 3)
14888/20000 [====================>.........] - ETA: 21s - loss: 0.097
0(512, 160, 320, 3)
15400/20000 [====================>.........] - ETA: 19s - loss: 0.096
9(512, 160, 320, 3)
15912/20000 [=====================>........] - ETA: 17s - loss: 0.096
9(512, 160, 320, 3)
16424/20000 [=====================>........] - ETA: 15s - loss: 0.096
3(512, 160, 320, 3)
16936/20000 [======================>.......] - ETA: 13s - loss: 0.095
8(512, 160, 320, 3)
17448/20000 [=======================>......] - ETA: 10s - loss: 0.095
3(512, 160, 320, 3)
17960/20000 [=======================>......] - ETA: 8s - loss: 0.0946
 (512, 160, 320, 3)
18472/20000 [========================>.....] - ETA: 6s - loss: 0.0943
(40, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0945
(512, 160, 320, 3)
19496/20000 [=========================>....] - ETA: 2s - loss: 0.0944
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00015: saving model to Nvidias-check-15-0.0931.hdf5
20008/20000 [==============================] - 90s - loss: 0.0934 - v
al_loss: 0.0931
Epoch 17/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 98s - loss: 0.074
2(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 81s - loss: 0.112
9(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 75s - loss: 0.104
1(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 76s - loss: 0.096
7(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 72s - loss: 0.100
1(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 72s - loss: 0.096
9(512, 160, 320, 3)
 3624/20000 [====>.........................] - ETA: 68s - loss: 0.104
8(512, 160, 320, 3)
(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 68s - loss: 0.101
7(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 67s - loss: 0.101
8(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 63s - loss: 0.102
5(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 62s - loss: 0.103
4(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 59s - loss: 0.103
1(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 57s - loss: 0.101
2(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 54s - loss: 0.098
6(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 53s - loss: 0.100
5(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 50s - loss: 0.100
```

```
1(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 48s - loss: 0.099
9(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 46s - loss: 0.099
9(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 44s - loss: 0.098
7(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 41s - loss: 0.098
5(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 39s - loss: 0.098
5(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 37s - loss: 0.098
1(512, 160, 320, 3)
11816/20000 [================>.............] - ETA: 35s - loss: 0.098
4(512, 160, 320, 3)
12328/20000 [================>.............] - ETA: 33s - loss: 0.098
2(512, 160, 320, 3)
12840/20000 [==================>...........] - ETA: 30s - loss: 0.097
5(512, 160, 320, 3)
13352/20000 [==================>...........] - ETA: 28s - loss: 0.097
5(512, 160, 320, 3)
13864/20000 [==================>...........] - ETA: 26s - loss: 0.095
8(512, 160, 320, 3)
14376/20000 [====================>.........] - ETA: 24s - loss: 0.096
5(512, 160, 320, 3)
14888/20000 [====================>.........] - ETA: 21s - loss: 0.096
5(512, 160, 320, 3)
15400/20000 [=====================>.......] - ETA: 19s - loss: 0.096
8(512, 160, 320, 3)
15912/20000 [=====================>.......] - ETA: 17s - loss: 0.096
6(512, 160, 320, 3)
16424/20000 [======================>......] - ETA: 15s - loss: 0.096
7(512, 160, 320, 3)
16936/20000 [======================>.....] - ETA: 13s - loss: 0.096
1(512, 160, 320, 3)
17448/20000 [=======================>....] - ETA: 11s - loss: 0.095
6(512, 160, 320, 3)
17960/20000 [=======================>....] - ETA: 8s - loss: 0.0951
 (512, 160, 320, 3)
18472/20000 [========================>...] - ETA: 6s - loss: 0.0944
(512, 160, 320, 3)
18984/20000 [========================>..] - ETA: 4s - loss: 0.0941
(40, 160, 320, 3)
19496/20000 [========================>.] - ETA: 2s - loss: 0.0942
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00016: saving model to Nvidias-check-16-0.0884.hdf5
20008/20000 [==============================] - 91s - loss: 0.0943 - v
al_loss: 0.0884
Epoch 18/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 71s - loss: 0.047
2(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 69s - loss: 0.060
7(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 76s - loss: 0.089
5(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 71s - loss: 0.088
4(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 73s - loss: 0.084
4(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 69s - loss: 0.088
3(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 69s - loss: 0.086
8(512, 160, 320, 3)
 4136/20000 [=====>........................] - ETA: 65s - loss: 0.094
3(512, 160, 320, 3)
(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 65s - loss: 0.093
1(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 62s - loss: 0.094
5(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 61s - loss: 0.096
4(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 58s - loss: 0.097
7(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 57s - loss: 0.097
9(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 54s - loss: 0.096
6(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 52s - loss: 0.094
7(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 49s - loss: 0.097
1(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 48s - loss: 0.096
3(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 45s - loss: 0.096
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5(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 43s - loss: 0.096
7(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 41s - loss: 0.095
9(512, 160, 320, 3)
10792/20000 [==============>...............] - ETA: 39s - loss: 0.095
7(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 37s - loss: 0.095
9(512, 160, 320, 3)
11816/20000 [===============>..............] - ETA: 35s - loss: 0.095
8(512, 160, 320, 3)
12328/20000 [================>.............] - ETA: 32s - loss: 0.096
4(512, 160, 320, 3)
12840/20000 [================>.............] - ETA: 30s - loss: 0.096
4(512, 160, 320, 3)
13352/20000 [=================>............] - ETA: 28s - loss: 0.095
9(512, 160, 320, 3)
13864/20000 [=================>............] - ETA: 26s - loss: 0.096
0(512, 160, 320, 3)
14376/20000 [==================>...........] - ETA: 23s - loss: 0.094
7(512, 160, 320, 3)
14888/20000 [==================>...........] - ETA: 21s - loss: 0.095
1(512, 160, 320, 3)
15400/20000 [===================>..........] - ETA: 19s - loss: 0.095
0(512, 160, 320, 3)
15912/20000 [===================>..........] - ETA: 17s - loss: 0.095
3(512, 160, 320, 3)
16424/20000 [====================>.........] - ETA: 15s - loss: 0.095
2(512, 160, 320, 3)
16936/20000 [====================>.........] - ETA: 13s - loss: 0.095
3(512, 160, 320, 3)
17448/20000 [=====================>........] - ETA: 10s - loss: 0.094
9(512, 160, 320, 3)
17960/20000 [=====================>........] - ETA: 8s - loss: 0.0945
 (512, 160, 320, 3)
18472/20000 [======================>.......] - ETA: 6s - loss: 0.0941
(512, 160, 320, 3)
18984/20000 [======================>.......] - ETA: 4s - loss: 0.0936
(512, 160, 320, 3)
19496/20000 [=======================>......] - ETA: 2s - loss: 0.0934
(40, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00017: saving model to Nvidias-check-17-0.0911.hdf5
20008/20000 [==============================] - 91s - loss: 0.0935 - v
al_loss: 0.0911
Epoch 19/20
(512, 160, 320, 3)
  512/20000 [..............................] - ETA: 70s - loss: 0.095
1(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 81s - loss: 0.072
3(512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 74s - loss: 0.074
4(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 76s - loss: 0.092
7(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 71s - loss: 0.092
4(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 71s - loss: 0.087
9(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 67s - loss: 0.090
9(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 67s - loss: 0.088
9(512, 160, 320, 3)
 4648/20000 [=====>........................] - ETA: 63s - loss: 0.095
0(512, 160, 320, 3)
(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 63s - loss: 0.092
9(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 60s - loss: 0.093
7(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 57s - loss: 0.095
4(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 55s - loss: 0.096
5(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 53s - loss: 0.096
8(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 51s - loss: 0.096
3(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 49s - loss: 0.094
7(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 47s - loss: 0.096
8(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 45s - loss: 0.095
9(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 43s - loss: 0.096
2(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 41s - loss: 0.096
6(512, 160, 320, 3)
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10792/20000 [===============>.............] - ETA: 38s - loss: 0.095
7(512, 160, 320, 3)
11304/20000 [===============>.............] - ETA: 36s - loss: 0.095
2(512, 160, 320, 3)
11816/20000 [================>............] - ETA: 34s - loss: 0.095
6(512, 160, 320, 3)
12328/20000 [================>............] - ETA: 32s - loss: 0.095
2(512, 160, 320, 3)
12840/20000 [=================>...........] - ETA: 30s - loss: 0.095
9(512, 160, 320, 3)
13352/20000 [=================>...........] - ETA: 27s - loss: 0.095
6(512, 160, 320, 3)
13864/20000 [==================>..........] - ETA: 25s - loss: 0.095
2(512, 160, 320, 3)
14376/20000 [==================>..........] - ETA: 23s - loss: 0.095
1(512, 160, 320, 3)
14888/20000 [===================>.........] - ETA: 21s - loss: 0.093
7(512, 160, 320, 3)
15400/20000 [====================>........] - ETA: 19s - loss: 0.094
0(512, 160, 320, 3)
15912/20000 [====================>........] - ETA: 17s - loss: 0.094
0(512, 160, 320, 3)
16424/20000 [=====================>.......] - ETA: 15s - loss: 0.094
4(512, 160, 320, 3)
16936/20000 [=====================>.......] - ETA: 12s - loss: 0.094
1(512, 160, 320, 3)
17448/20000 [======================>......] - ETA: 10s - loss: 0.094
4(512, 160, 320, 3)
17960/20000 [======================>......] - ETA: 8s - loss: 0.0938
 (512, 160, 320, 3)
18472/20000 [=======================>.....] - ETA: 6s - loss: 0.0935
(512, 160, 320, 3)
18984/20000 [=======================>.....] - ETA: 4s - loss: 0.0931
(512, 160, 320, 3)
19496/20000 [========================>....] - ETA: 2s - loss: 0.0927
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
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(3, 160, 320, 3)
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(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00018: saving model to Nvidias-check-18-0.0901.hdf5
20008/20000 [==============================] - 90s - loss: 0.0924 - v
al_loss: 0.0901
Epoch 20/20
(40, 160, 320, 3)
  512/20000 [..............................] - ETA: 113s - loss: 0.09
69(512, 160, 320, 3)
 1024/20000 [>.............................] - ETA: 92s - loss: 0.096
7 (512, 160, 320, 3)
 1536/20000 [=>............................] - ETA: 91s - loss: 0.080
8(512, 160, 320, 3)
 2048/20000 [==>...........................] - ETA: 84s - loss: 0.079
1(512, 160, 320, 3)
 2560/20000 [==>...........................] - ETA: 78s - loss: 0.092
8(512, 160, 320, 3)
 3072/20000 [===>..........................] - ETA: 75s - loss: 0.092
2(512, 160, 320, 3)
 3584/20000 [====>.........................] - ETA: 75s - loss: 0.088
9(512, 160, 320, 3)
 4096/20000 [=====>........................] - ETA: 71s - loss: 0.090
9(512, 160, 320, 3)
 4608/20000 [=====>........................] - ETA: 70s - loss: 0.090
0(512, 160, 320, 3)
 5160/20000 [======>.......................] - ETA: 66s - loss: 0.095
6(512, 160, 320, 3)
(512, 160, 320, 3)
 5672/20000 [=======>......................] - ETA: 65s - loss: 0.093
8(512, 160, 320, 3)
 6184/20000 [========>.....................] - ETA: 64s - loss: 0.095
0(512, 160, 320, 3)
 6696/20000 [=========>....................] - ETA: 62s - loss: 0.096
3(512, 160, 320, 3)
 7208/20000 [=========>....................] - ETA: 59s - loss: 0.097
3(512, 160, 320, 3)
 7720/20000 [==========>...................] - ETA: 57s - loss: 0.097
1(512, 160, 320, 3)
 8232/20000 [===========>..................] - ETA: 54s - loss: 0.096
3(512, 160, 320, 3)
 8744/20000 [============>.................] - ETA: 52s - loss: 0.094
8(512, 160, 320, 3)
 9256/20000 [============>.................] - ETA: 49s - loss: 0.096
8(512, 160, 320, 3)
 9768/20000 [=============>................] - ETA: 47s - loss: 0.096
2(512, 160, 320, 3)
10280/20000 [==============>...............] - ETA: 44s - loss: 0.096
4(512, 160, 320, 3)
10792/20000 [===============>..............] - ETA: 42s - loss: 0.096
7(512, 160, 320, 3)
11304/20000 [===============>..............] - ETA: 39s - loss: 0.095
9(512, 160, 320, 3)
```

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11816/20000 [================>.............] - ETA: 37s - loss: 0.095
6(512, 160, 320, 3)
12328/20000 [=================>............] - ETA: 35s - loss: 0.095
9(512, 160, 320, 3)
12840/20000 [==================>...........] - ETA: 32s - loss: 0.095
6(512, 160, 320, 3)
13352/20000 [==================>...........] - ETA: 30s - loss: 0.096
1(512, 160, 320, 3)
13864/20000 [===================>..........] - ETA: 27s - loss: 0.096
3(512, 160, 320, 3)
14376/20000 [====================>.........] - ETA: 25s - loss: 0.096
0(512, 160, 320, 3)
14888/20000 [====================>.........] - ETA: 23s - loss: 0.096
0(512, 160, 320, 3)
15400/20000 [=====================>........] - ETA: 20s - loss: 0.094
7(512, 160, 320, 3)
15912/20000 [=====================>........] - ETA: 18s - loss: 0.095
1(512, 160, 320, 3)
16424/20000 [======================>.......] - ETA: 16s - loss: 0.095
1(512, 160, 320, 3)
16936/20000 [======================>.......] - ETA: 13s - loss: 0.095
2(512, 160, 320, 3)
17448/20000 [=======================>......] - ETA: 11s - loss: 0.094
9(512, 160, 320, 3)
17960/20000 [=======================>......] - ETA: 9s - loss: 0.0948
 (512, 160, 320, 3)
18472/20000 [========================>.....] - ETA: 6s - loss: 0.0945
(512, 160, 320, 3)
18984/20000 [========================>.....] - ETA: 4s - loss: 0.0941
(512, 160, 320, 3)
19496/20000 [=========================>....] - ETA: 2s - loss: 0.0937
(512, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
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(128, 160, 320, 3)
(3, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
(128, 160, 320, 3)
```

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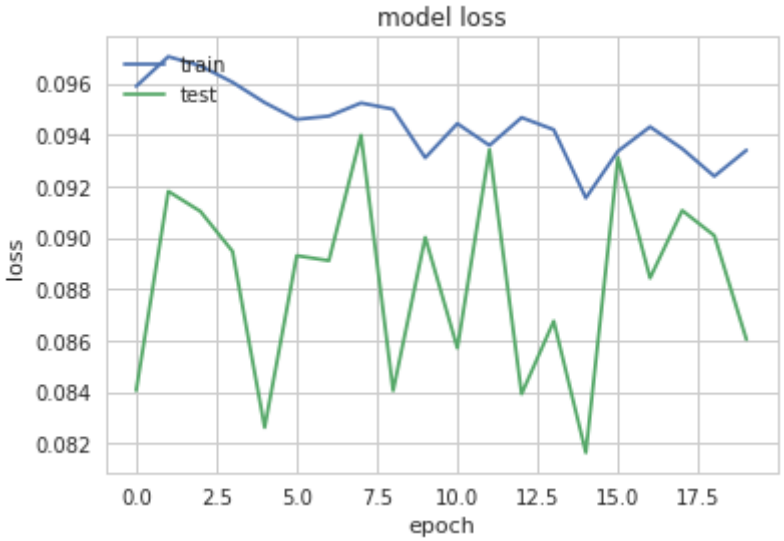
(128, 160, 320, 3)
(128, 160, 320, 3)
Epoch 00019: saving model to Nvidias-check-19-0.0860.hdf5
20008/20000 [==============================] - 96s - loss: 0.0934 - v
al_loss: 0.0860
```

In [67]:
```
print(history_object2.history.keys())
plt.plot(history_object2.history['loss'])
plt.plot(history_object2.history['val_loss'])

plt.title('model loss')
plt.ylabel('loss')
plt.xlabel('epoch')
plt.legend(['train', 'test'], loc='upper left')
plt.show()
```

```
dict_keys(['loss', 'val_loss'])
```



In [68]:
```
# go one level up to save final model
model_json = model.to_json()
with open("model_final.json", "w") as json_file:
    json_file.write(model_json)


model.save("model_final.h5")
print("Saved model to disk")

print(model.summary())
```

```
Saved model to disk
_________________________________________________________________
Layer (type)                 Output Shape              Param #
Connected to
=================================================================
zeropadding2d_1 (ZeroPadding2D)  (None, 162, 322, 3)   0
zeropadding2d_input_3[0][0]
_________________________________________________________________
cropping2d_1 (Cropping2D)    (None, 82, 322, 3)    0
zeropadding2d_1[0][0]
_________________________________________________________________
lambda_2 (Lambda)            (None, 64, 64, 3)     0
cropping2d_1[0][0]
_________________________________________________________________
convolution2d_6 (Convolution2D)  (None, 32, 32, 24)    1824
lambda_2[0][0]
_________________________________________________________________
relu1 (Activation)           (None, 32, 32, 24)    0
convolution2d_6[0][0]
_________________________________________________________________
maxpooling2d_6 (MaxPooling2D)    (None, 31, 31, 24)    0
relu1[0][0]
_________________________________________________________________
convolution2d_7 (Convolution2D)  (None, 16, 16, 36)    21636
maxpooling2d_6[0][0]
_________________________________________________________________
relu2 (Activation)           (None, 16, 16, 36)    0
convolution2d_7[0][0]
_________________________________________________________________
maxpooling2d_7 (MaxPooling2D)    (None, 15, 15, 36)    0
relu2[0][0]
_________________________________________________________________
convolution2d_8 (Convolution2D)  (None, 8, 8, 48)      43248
maxpooling2d_7[0][0]
_________________________________________________________________
relu3 (Activation)           (None, 8, 8, 48)      0
convolution2d_8[0][0]
_________________________________________________________________
maxpooling2d_8 (MaxPooling2D)    (None, 7, 7, 48)      0
relu3[0][0]
_________________________________________________________________
convolution2d_9 (Convolution2D)  (None, 7, 7, 64)      27712
maxpooling2d_8[0][0]
```

```
____________________________________________________________________________________________
____________________________________
relu4 (Activation)                   (None, 7, 7, 64)      0           co
nvolution2d_9[0][0]
____________________________________________________________________________________________
____________________________________
maxpooling2d_9 (MaxPooling2D)        (None, 6, 6, 64)      0           re
lu4[0][0]
____________________________________________________________________________________________
____________________________________
convolution2d_10 (Convolution2D) (None, 6, 6, 64)      36928       ma
xpooling2d_9[0][0]
____________________________________________________________________________________________
____________________________________
relu5 (Activation)                   (None, 6, 6, 64)      0           co
nvolution2d_10[0][0]
____________________________________________________________________________________________
____________________________________
maxpooling2d_10 (MaxPooling2D)       (None, 5, 5, 64)      0           re
lu5[0][0]
____________________________________________________________________________________________
____________________________________
flatten_2 (Flatten)                  (None, 1600)          0           ma
xpooling2d_10[0][0]
____________________________________________________________________________________________
____________________________________
dense_6 (Dense)                      (None, 1164)          1863564     fl
atten_2[0][0]
____________________________________________________________________________________________
____________________________________
relu6 (Activation)                   (None, 1164)          0           de
nse_6[0][0]
____________________________________________________________________________________________
____________________________________
dense_7 (Dense)                      (None, 100)           116500      re
lu6[0][0]
____________________________________________________________________________________________
____________________________________
relu7 (Activation)                   (None, 100)           0           de
nse_7[0][0]
____________________________________________________________________________________________
____________________________________
dense_8 (Dense)                      (None, 50)            5050        re
lu7[0][0]
____________________________________________________________________________________________
____________________________________
relu8 (Activation)                   (None, 50)            0           de
nse_8[0][0]
____________________________________________________________________________________________
____________________________________
dense_9 (Dense)                      (None, 10)            510         re
lu8[0][0]
____________________________________________________________________________________________
____________________________________
relu9 (Activation)                   (None, 10)            0           de
nse_9[0][0]
____________________________________________________________________________________________
```

```
_________________________________
dense_10 (Dense)                 (None, 1)             11          re
lu9[0][0]
==================================================================
================================
Total params: 2,116,983
Trainable params: 2,116,983
Non-trainable params: 0
__________________________________________________________________
_________________________________
None
```

With above approach car is able to complete Track 1 but it was not able to perform well in Track 2 . During data collection we have not collected data from Track2.

Results:-

```
please check final model file- Nvidias-check-24-0.0843.hdf5
video file-> IMG.mp4
youtube video link -> https://www.youtube.com/watch?v=x_zMxxjopok&feature=yo
utu.be
```

In [ ]: