Using TensorFlow backend.

/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:519: FutureWarning: Passing (type, 1) or '1type' as a synonym of type is deprecated; in a future version of numpy, it will be understood as (type, (1,)) / '(1,)type'.

\_np\_qint8 = np.dtype([("qint8", np.int8, 1)])

/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:520: FutureWarning: Passing (type, 1) or '1type' as a synonym of type is deprecated; in a future version of numpy, it will be understood as (type, (1,)) / '(1,)type'.

\_np\_quint8 = np.dtype([("quint8", np.uint8, 1)])

/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:521: FutureWarning: Passing (type, 1) or '1type' as a synonym of type is deprecated; in a future version of numpy, it will be understood as (type, (1,)) / '(1,)type'.

\_np\_qint16 = np.dtype([("qint16", np.int16, 1)])

/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:522: FutureWarning: Passing (type, 1) or '1type' as a synonym of type is deprecated; in a future version of numpy, it will be understood as (type, (1,)) / '(1,)type'.

\_np\_quint16 = np.dtype([("quint16", np.uint16, 1)])

/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:523: FutureWarning: Passing (type, 1) or '1type' as a synonym of type is deprecated; in a future version of numpy, it will be understood as (type, (1,)) / '(1,)type'.

\_np\_qint32 = np.dtype([("qint32", np.int32, 1)])

/usr/local/lib/python3.6/dist-packages/tensorflow/python/framework/dtypes.py:528: FutureWarning: Passing (type, 1) or '1type' as a synonym of type is deprecated; in a future version of numpy, it will be understood as (type, (1,)) / '(1,)type'.

np\_resource = np.dtype([("resource", np.ubyte, 1)])

Parsing annotation files

Training images per class:

{'1': 52,

'10': 470,

'11': 407,

'12': 276,

'13': 260,

'14': 210,

'15': 105,

'16': 80,

'17': 68,

'18': 108,

'19': 38,

'2': 2138,

'20': 80,

'21': 21,

'22': 44,

'23': 46,

'24': 72,

'25': 25,

'28': 56,

'29': 29,

'3': 4272,

'31': 62,

'4': 4952,

'5': 4050,

'6': 2832,

'7': 1778,

'77': 77,

'8': 1088,

'9': 837,

'bg': 0}

Num classes (including bg) = 30

Config has been written to config.pickle, and can be loaded when testing to ensure correct results

Num train samples 4796

Num val samples 937

loading weights from resnet50\_weights\_tf\_dim\_ordering\_tf\_kernels.h5

Could not load pretrained model weights. Weights can be found in the keras application folder <https://github.com/fchollet/keras/tree/master/keras/applications>

Starting training

Epoch 1/100

2019-12-09 04:36:23.752845: I tensorflow/core/platform/cpu\_feature\_guard.cc:140] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2 FMA

2019-12-09 04:36:23.975112: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:898] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2019-12-09 04:36:23.976039: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1356] Found device 0 with properties:

name: Tesla P100-PCIE-16GB major: 6 minor: 0 memoryClockRate(GHz): 1.3285

pciBusID: 0000:00:04.0

totalMemory: 15.90GiB freeMemory: 15.64GiB

2019-12-09 04:36:23.976075: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1435] Adding visible gpu devices: 0

2019-12-09 04:36:26.095189: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:923] Device interconnect StreamExecutor with strength 1 edge matrix:

2019-12-09 04:36:26.095252: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:929] 0

2019-12-09 04:36:26.095267: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:942] 0: N

2019-12-09 04:36:26.097654: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1053] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 15163 MB memory) -> physical GPU (device: 0, name: Tesla P100-PCIE-16GB, pci bus id: 0000:00:04.0, compute capability: 6.0)

2019-12-09 04:36:27.824367: W tensorflow/core/framework/allocator.cc:101] Allocation of 18874368 exceeds 10% of system memory.

2019-12-09 04:36:27.860028: W tensorflow/core/framework/allocator.cc:101] Allocation of 18874368 exceeds 10% of system memory.

2019-12-09 04:36:28.251056: W tensorflow/core/framework/allocator.cc:101] Allocation of 18874368 exceeds 10% of system memory.

2019-12-09 04:36:28.279645: W tensorflow/core/framework/allocator.cc:101] Allocation of 18874368 exceeds 10% of system memory.

994/1000 [============================>.] - ETA: 5s - rpn\_cls: 3.3080 - rpn\_regr: 0.2459 - detector\_cls: 0.6953 - detector\_regr: 0.3370Average number of overlapping bounding boxes from RPN = 4.269 for 1000 previous iterations

1000/1000 [==============================] - 944s 944ms/step - rpn\_cls: 3.3119 - rpn\_regr: 0.2465 - detector\_cls: 0.6933 - detector\_regr: 0.3371

Mean number of bounding boxes from RPN overlapping ground truth boxes: 4.258449304174951

Classifier accuracy for bounding boxes from RPN: 0.86778125

Loss RPN classifier: 3.311934902632989

Loss RPN regression: 0.24646558780129998

Loss Detector classifier: 0.6933265111050568

Loss Detector regression: 0.33706904043443503

Elapsed time: 944.0630528926849

Total loss decreased from inf to 4.58879604197378, saving weights

Epoch 2/100

932/1000 [==========================>...] - ETA: 1:04 - rpn\_cls: 3.2455 - rpn\_regr: 0.2050 - detector\_cls: 0.7763 - detector\_regr: 0.3153Average number of overlapping bounding boxes from RPN = 5.142 for 1000 previous iterations

1000/1000 [==============================] - 946s 946ms/step - rpn\_cls: 3.2157 - rpn\_regr: 0.2069 - detector\_cls: 0.7707 - detector\_regr: 0.3138

Mean number of bounding boxes from RPN overlapping ground truth boxes: 5.078725398313027

Classifier accuracy for bounding boxes from RPN: 0.8371875

Loss RPN classifier: 3.2156916726792506

Loss RPN regression: 0.20685845684586093

Loss Detector classifier: 0.7707240519374609

Loss Detector regression: 0.3137645301166922

Elapsed time: 958.6459007263184

Total loss decreased from 4.58879604197378 to 4.5070387115792645, saving weights

Epoch 3/100

880/1000 [=========================>....] - ETA: 1:51 - rpn\_cls: 3.0213 - rpn\_regr: 0.1986 - detector\_cls: 0.8533 - detector\_regr: 0.2948Average number of overlapping bounding boxes from RPN = 6.35 for 1000 previous iterations

1000/1000 [==============================] - 924s 924ms/step - rpn\_cls: 2.9803 - rpn\_regr: 0.1967 - detector\_cls: 0.8958 - detector\_regr: 0.2971

Mean number of bounding boxes from RPN overlapping ground truth boxes: 7.087870105062082

Classifier accuracy for bounding boxes from RPN: 0.784

Loss RPN classifier: 2.9803176701964516

Loss RPN regression: 0.19674760197941213

Loss Detector classifier: 0.8957771265516058

Loss Detector regression: 0.29710785109363497

Elapsed time: 925.8846900463104

Total loss decreased from 4.5070387115792645 to 4.3699502498211045, saving weights

Epoch 4/100

879/1000 [=========================>....] - ETA: 1:48 - rpn\_cls: 2.6977 - rpn\_regr: 0.1921 - detector\_cls: 1.1272 - detector\_regr: 0.3212Average number of overlapping bounding boxes from RPN = 10.947 for 1000 previous iterations

1000/1000 [==============================] - 902s 902ms/step - rpn\_cls: 2.6477 - rpn\_regr: 0.1942 - detector\_cls: 1.1256 - detector\_regr: 0.3195

Mean number of bounding boxes from RPN overlapping ground truth boxes: 10.847152847152847

Classifier accuracy for bounding boxes from RPN: 0.7

Loss RPN classifier: 2.6476761999744762

Loss RPN regression: 0.19416845088172704

Loss Detector classifier: 1.1255746471378951

Loss Detector regression: 0.3195261701270938

Elapsed time: 904.0336482524872

Total loss decreased from 4.3699502498211045 to 4.286945468121192, saving weights

Epoch 5/100

878/1000 [=========================>....] - ETA: 1:48 - rpn\_cls: 2.6915 - rpn\_regr: 0.1798 - detector\_cls: 1.0830 - detector\_regr: 0.2910Average number of overlapping bounding boxes from RPN = 10.996 for 1000 previous iterations

1000/1000 [==============================] - 894s 894ms/step - rpn\_cls: 2.6934 - rpn\_regr: 0.1798 - detector\_cls: 1.0877 - detector\_regr: 0.2915

Mean number of bounding boxes from RPN overlapping ground truth boxes: 11.201798201798201

Classifier accuracy for bounding boxes from RPN: 0.69296875

Loss RPN classifier: 2.6934361721538598

Loss RPN regression: 0.17981224405718968

Loss Detector classifier: 1.087658341480419

Loss Detector regression: 0.2915363762704656

Elapsed time: 895.8332800865173

Total loss decreased from 4.286945468121192 to 4.2524431339619335, saving weights

Epoch 6/100

877/1000 [=========================>....] - ETA: 1:49 - rpn\_cls: 2.6072 - rpn\_regr: 0.1857 - detector\_cls: 1.0852 - detector\_regr: 0.2764Average number of overlapping bounding boxes from RPN = 12.027 for 1000 previous iterations

1000/1000 [==============================] - 894s 894ms/step - rpn\_cls: 2.5781 - rpn\_regr: 0.1851 - detector\_cls: 1.0974 - detector\_regr: 0.2778

Mean number of bounding boxes from RPN overlapping ground truth boxes: 12.04995004995005

Classifier accuracy for bounding boxes from RPN: 0.68284375

Loss RPN classifier: 2.5780605771601923

Loss RPN regression: 0.18511905970005318

Loss Detector classifier: 1.0974074178733864

Loss Detector regression: 0.2777749555259943

Elapsed time: 896.124979019165

Total loss decreased from 4.2524431339619335 to 4.138362010259626, saving weights

Epoch 7/100

877/1000 [=========================>....] - ETA: 1:50 - rpn\_cls: 2.4371 - rpn\_regr: 0.1736 - detector\_cls: 1.1073 - detector\_regr: 0.2606Average number of overlapping bounding boxes from RPN = 12.27 for 1000 previous iterations

1000/1000 [==============================] - 898s 898ms/step - rpn\_cls: 2.4360 - rpn\_regr: 0.1729 - detector\_cls: 1.1000 - detector\_regr: 0.2604

Mean number of bounding boxes from RPN overlapping ground truth boxes: 12.238

Classifier accuracy for bounding boxes from RPN: 0.6805

Loss RPN classifier: 2.4359935690605288

Loss RPN regression: 0.1729295238745399

Loss Detector classifier: 1.1000101552875712

Loss Detector regression: 0.26035123962536455

Elapsed time: 900.0139474868774

Total loss decreased from 4.138362010259626 to 3.9692844878480043, saving weights

Epoch 8/100

876/1000 [=========================>....] - ETA: 1:51 - rpn\_cls: 2.3942 - rpn\_regr: 0.1712 - detector\_cls: 1.1062 - detector\_regr: 0.2649Average number of overlapping bounding boxes from RPN = 12.528 for 1000 previous iterations

1000/1000 [==============================] - 898s 898ms/step - rpn\_cls: 2.4192 - rpn\_regr: 0.1675 - detector\_cls: 1.1088 - detector\_regr: 0.2615

Mean number of bounding boxes from RPN overlapping ground truth boxes: 12.668331668331668

Classifier accuracy for bounding boxes from RPN: 0.6749375

Loss RPN classifier: 2.419224146262839

Loss RPN regression: 0.16752643403131515

Loss Detector classifier: 1.1087599675804376

Loss Detector regression: 0.2614527379833162

Elapsed time: 899.7884078025818

Total loss decreased from 3.9692844878480043 to 3.9569632858579076, saving weights

Epoch 9/100

875/1000 [=========================>....] - ETA: 1:52 - rpn\_cls: 2.3644 - rpn\_regr: 0.1615 - detector\_cls: 1.1201 - detector\_regr: 0.2378Average number of overlapping bounding boxes from RPN = 13.141 for 1000 previous iterations

1000/1000 [==============================] - 896s 896ms/step - rpn\_cls: 2.3676 - rpn\_regr: 0.1589 - detector\_cls: 1.1175 - detector\_regr: 0.2393

Mean number of bounding boxes from RPN overlapping ground truth boxes: 13.147704590818364

Classifier accuracy for bounding boxes from RPN: 0.6643125

Loss RPN classifier: 2.3676168633005363

Loss RPN regression: 0.15892515351925976

Loss Detector classifier: 1.1175420506820082

Loss Detector regression: 0.23925732469558716

Elapsed time: 898.157274723053

Total loss decreased from 3.9569632858579076 to 3.8833413921973916, saving weights

Epoch 10/100

873/1000 [=========================>....] - ETA: 1:53 - rpn\_cls: 2.3520 - rpn\_regr: 0.1556 - detector\_cls: 1.1025 - detector\_regr: 0.2328Average number of overlapping bounding boxes from RPN = 13.189 for 1000 previous iterations

1000/1000 [==============================] - 893s 893ms/step - rpn\_cls: 2.3111 - rpn\_regr: 0.1537 - detector\_cls: 1.1031 - detector\_regr: 0.2328

Mean number of bounding boxes from RPN overlapping ground truth boxes: 13.304695304695304

Classifier accuracy for bounding boxes from RPN: 0.664875

Loss RPN classifier: 2.3111039625284753

Loss RPN regression: 0.15373130563925952

Loss Detector classifier: 1.1030717110969126

Loss Detector regression: 0.2328427214846015

Elapsed time: 894.3042960166931

Total loss decreased from 3.8833413921973916 to 3.8007497007492494, saving weights

Epoch 11/100

870/1000 [=========================>....] - ETA: 1:57 - rpn\_cls: 2.3066 - rpn\_regr: 0.1587 - detector\_cls: 1.1044 - detector\_regr: 0.2222Average number of overlapping bounding boxes from RPN = 13.559 for 1000 previous iterations

1000/1000 [==============================] - 903s 903ms/step - rpn\_cls: 2.3126 - rpn\_regr: 0.1570 - detector\_cls: 1.1030 - detector\_regr: 0.2236

Mean number of bounding boxes from RPN overlapping ground truth boxes: 13.505483549351943

Classifier accuracy for bounding boxes from RPN: 0.66765625

Loss RPN classifier: 2.3126187624671073

Loss RPN regression: 0.1570251757595688

Loss Detector classifier: 1.1029913114532828

Loss Detector regression: 0.22364724484831094

Elapsed time: 905.2381610870361

Total loss decreased from 3.8007497007492494 to 3.7962824945282696, saving weights

Epoch 12/100

870/1000 [=========================>....] - ETA: 1:55 - rpn\_cls: 2.3884 - rpn\_regr: 0.1584 - detector\_cls: 1.1107 - detector\_regr: 0.2223Average number of overlapping bounding boxes from RPN = 13.876 for 1000 previous iterations

1000/1000 [==============================] - 886s 886ms/step - rpn\_cls: 2.3492 - rpn\_regr: 0.1548 - detector\_cls: 1.1030 - detector\_regr: 0.2218

Mean number of bounding boxes from RPN overlapping ground truth boxes: 13.922

Classifier accuracy for bounding boxes from RPN: 0.66675

Loss RPN classifier: 2.349187679014236

Loss RPN regression: 0.1547557400627993

Loss Detector classifier: 1.1029907950162887

Loss Detector regression: 0.2218338542059064

Elapsed time: 888.5433189868927

Epoch 13/100

869/1000 [=========================>....] - ETA: 1:57 - rpn\_cls: 2.1905 - rpn\_regr: 0.1378 - detector\_cls: 1.1219 - detector\_regr: 0.2186Average number of overlapping bounding boxes from RPN = 14.271 for 1000 previous iterations

1000/1000 [==============================] - 896s 896ms/step - rpn\_cls: 2.1837 - rpn\_regr: 0.1359 - detector\_cls: 1.1149 - detector\_regr: 0.2169

Mean number of bounding boxes from RPN overlapping ground truth boxes: 14.270729270729271

Classifier accuracy for bounding boxes from RPN: 0.651875

Loss RPN classifier: 2.1836678663730353

Loss RPN regression: 0.13592603178112767

Loss Detector classifier: 1.1149462253302336

Loss Detector regression: 0.21685800663381816

Elapsed time: 895.6613221168518

Total loss decreased from 3.7962824945282696 to 3.6513981301182143, saving weights

Epoch 14/100

869/1000 [=========================>....] - ETA: 1:57 - rpn\_cls: 2.2757 - rpn\_regr: 0.1486 - detector\_cls: 1.1069 - detector\_regr: 0.2085Average number of overlapping bounding boxes from RPN = 14.412 for 1000 previous iterations

1000/1000 [==============================] - 898s 898ms/step - rpn\_cls: 2.2693 - rpn\_regr: 0.1464 - detector\_cls: 1.0956 - detector\_regr: 0.2061

Mean number of bounding boxes from RPN overlapping ground truth boxes: 14.454

Classifier accuracy for bounding boxes from RPN: 0.65646875

Loss RPN classifier: 2.2692918201918713

Loss RPN regression: 0.14635711686918512

Loss Detector classifier: 1.0956008623451925

Loss Detector regression: 0.2061389356330037

Elapsed time: 900.1629228591919

Epoch 15/100

867/1000 [=========================>....] - ETA: 1:58 - rpn\_cls: 2.2387 - rpn\_regr: 0.1457 - detector\_cls: 1.0396 - detector\_regr: 0.2041Average number of overlapping bounding boxes from RPN = 13.419 for 1000 previous iterations

1000/1000 [==============================] - 890s 890ms/step - rpn\_cls: 2.2143 - rpn\_regr: 0.1476 - detector\_cls: 1.0380 - detector\_regr: 0.2028

Mean number of bounding boxes from RPN overlapping ground truth boxes: 13.374251497005988

Classifier accuracy for bounding boxes from RPN: 0.6793125

Loss RPN classifier: 2.21426798287413

Loss RPN regression: 0.14758192076231352

Loss Detector classifier: 1.0380127254705875

Loss Detector regression: 0.2027815489657223

Elapsed time: 890.2906167507172

Total loss decreased from 3.6513981301182143 to 3.6026441780727536, saving weights

Epoch 16/100

867/1000 [=========================>....] - ETA: 1:58 - rpn\_cls: 2.3012 - rpn\_regr: 0.1494 - detector\_cls: 1.1197 - detector\_regr: 0.2004Average number of overlapping bounding boxes from RPN = 14.636 for 1000 previous iterations

1000/1000 [==============================] - 892s 892ms/step - rpn\_cls: 2.2994 - rpn\_regr: 0.1490 - detector\_cls: 1.1129 - detector\_regr: 0.2017

Mean number of bounding boxes from RPN overlapping ground truth boxes: 14.545

Classifier accuracy for bounding boxes from RPN: 0.6541875

Loss RPN classifier: 2.2994000300186968

Loss RPN regression: 0.14898902866616845

Loss Detector classifier: 1.1129361523427068

Loss Detector regression: 0.20165532249957324

Elapsed time: 893.462611913681

Epoch 17/100

865/1000 [========================>.....] - ETA: 1:59 - rpn\_cls: 2.1187 - rpn\_regr: 0.1285 - detector\_cls: 1.0924 - detector\_regr: 0.1964Average number of overlapping bounding boxes from RPN = 14.176 for 1000 previous iterations

1000/1000 [==============================] - 885s 885ms/step - rpn\_cls: 2.0961 - rpn\_regr: 0.1284 - detector\_cls: 1.0858 - detector\_regr: 0.1952

Mean number of bounding boxes from RPN overlapping ground truth boxes: 14.246506986027944

Classifier accuracy for bounding boxes from RPN: 0.66325

Loss RPN classifier: 2.0960733259504787

Loss RPN regression: 0.1284398738136515

Loss Detector classifier: 1.0857888861857354

Loss Detector regression: 0.19521382750570773

Elapsed time: 884.5751686096191

Total loss decreased from 3.6026441780727536 to 3.5055159134555733, saving weights

Epoch 18/100

865/1000 [========================>.....] - ETA: 1:58 - rpn\_cls: 2.1940 - rpn\_regr: 0.1230 - detector\_cls: 1.0860 - detector\_regr: 0.1994Average number of overlapping bounding boxes from RPN = 14.68 for 1000 previous iterations

1000/1000 [==============================] - 874s 874ms/step - rpn\_cls: 2.1762 - rpn\_regr: 0.1244 - detector\_cls: 1.0896 - detector\_regr: 0.1988

Mean number of bounding boxes from RPN overlapping ground truth boxes: 14.807

Classifier accuracy for bounding boxes from RPN: 0.6515

Loss RPN classifier: 2.1762494636691514

Loss RPN regression: 0.12436229562480003

Loss Detector classifier: 1.089628187995404

Loss Detector regression: 0.19876651034131645

Elapsed time: 876.2069053649902

Epoch 19/100

864/1000 [========================>.....] - ETA: 1:58 - rpn\_cls: 2.1285 - rpn\_regr: 0.1381 - detector\_cls: 1.0894 - detector\_regr: 0.1916Average number of overlapping bounding boxes from RPN = 15.282 for 1000 previous iterations

1000/1000 [==============================] - 869s 869ms/step - rpn\_cls: 2.1253 - rpn\_regr: 0.1363 - detector\_cls: 1.0937 - detector\_regr: 0.1926

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.387612387612387

Classifier accuracy for bounding boxes from RPN: 0.64859375

Loss RPN classifier: 2.1252604454797708

Loss RPN regression: 0.13627373130526393

Loss Detector classifier: 1.093714596380014

Loss Detector regression: 0.1926313260421157

Elapsed time: 868.7485136985779

Epoch 20/100

864/1000 [========================>.....] - ETA: 1:59 - rpn\_cls: 2.0997 - rpn\_regr: 0.1350 - detector\_cls: 1.0945 - detector\_regr: 0.1872Average number of overlapping bounding boxes from RPN = 15.404 for 1000 previous iterations

1000/1000 [==============================] - 887s 887ms/step - rpn\_cls: 2.1890 - rpn\_regr: 0.1397 - detector\_cls: 1.0938 - detector\_regr: 0.1895

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.233

Classifier accuracy for bounding boxes from RPN: 0.65696875

Loss RPN classifier: 2.1889537720865984

Loss RPN regression: 0.1397220806586556

Loss Detector classifier: 1.0937609379198403

Loss Detector regression: 0.18946929119806738

Elapsed time: 886.9895100593567

Epoch 21/100

864/1000 [========================>.....] - ETA: 1:58 - rpn\_cls: 2.0640 - rpn\_regr: 0.1220 - detector\_cls: 1.0912 - detector\_regr: 0.1849Average number of overlapping bounding boxes from RPN = 15.097 for 1000 previous iterations

1000/1000 [==============================] - 877s 877ms/step - rpn\_cls: 2.0907 - rpn\_regr: 0.1251 - detector\_cls: 1.0971 - detector\_regr: 0.1861

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.298

Classifier accuracy for bounding boxes from RPN: 0.654375

Loss RPN classifier: 2.090656619233551

Loss RPN regression: 0.12513602364459075

Loss Detector classifier: 1.0970585928820074

Loss Detector regression: 0.18605514831095935

Elapsed time: 876.9146671295166

Total loss decreased from 3.5055159134555733 to 3.4989063840711085, saving weights

Epoch 22/100

863/1000 [========================>.....] - ETA: 2:00 - rpn\_cls: 2.1267 - rpn\_regr: 0.1309 - detector\_cls: 1.0976 - detector\_regr: 0.1854Average number of overlapping bounding boxes from RPN = 15.576 for 1000 previous iterations

1000/1000 [==============================] - 883s 883ms/step - rpn\_cls: 2.1107 - rpn\_regr: 0.1283 - detector\_cls: 1.0968 - detector\_regr: 0.1850

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.551448551448551

Classifier accuracy for bounding boxes from RPN: 0.6495625

Loss RPN classifier: 2.110696299162706

Loss RPN regression: 0.128254272678867

Loss Detector classifier: 1.096753931162879

Loss Detector regression: 0.1849924356918782

Elapsed time: 884.7700815200806

Epoch 23/100

863/1000 [========================>.....] - ETA: 2:00 - rpn\_cls: 2.0126 - rpn\_regr: 0.1226 - detector\_cls: 1.0805 - detector\_regr: 0.1752Average number of overlapping bounding boxes from RPN = 15.848 for 1000 previous iterations

1000/1000 [==============================] - 876s 876ms/step - rpn\_cls: 2.0190 - rpn\_regr: 0.1230 - detector\_cls: 1.0735 - detector\_regr: 0.1760

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.71

Classifier accuracy for bounding boxes from RPN: 0.65475

Loss RPN classifier: 2.0189576824495696

Loss RPN regression: 0.12299656860763207

Loss Detector classifier: 1.073492993587628

Loss Detector regression: 0.17599402231164277

Elapsed time: 876.0913920402527

Total loss decreased from 3.4989063840711085 to 3.391441266956473, saving weights

Epoch 24/100

863/1000 [========================>.....] - ETA: 2:01 - rpn\_cls: 2.0808 - rpn\_regr: 0.1221 - detector\_cls: 1.0990 - detector\_regr: 0.1878Average number of overlapping bounding boxes from RPN = 15.806 for 1000 previous iterations

1000/1000 [==============================] - 886s 886ms/step - rpn\_cls: 2.0792 - rpn\_regr: 0.1208 - detector\_cls: 1.0960 - detector\_regr: 0.1859

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.945

Classifier accuracy for bounding boxes from RPN: 0.6545

Loss RPN classifier: 2.079201784064635

Loss RPN regression: 0.12082874535024166

Loss Detector classifier: 1.0959715070277452

Loss Detector regression: 0.18585682827606798

Elapsed time: 887.8881783485413

Epoch 25/100

863/1000 [========================>.....] - ETA: 1:59 - rpn\_cls: 1.9458 - rpn\_regr: 0.1188 - detector\_cls: 1.0776 - detector\_regr: 0.1759Average number of overlapping bounding boxes from RPN = 15.713 for 1000 previous iterations

1000/1000 [==============================] - 876s 876ms/step - rpn\_cls: 1.9984 - rpn\_regr: 0.1195 - detector\_cls: 1.0813 - detector\_regr: 0.1776

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.795

Classifier accuracy for bounding boxes from RPN: 0.65378125

Loss RPN classifier: 1.9984093782719947

Loss RPN regression: 0.11945924814930185

Loss Detector classifier: 1.0812888064277357

Loss Detector regression: 0.17756690347194673

Elapsed time: 875.5704612731934

Total loss decreased from 3.391441266956473 to 3.3767243363209793, saving weights

Epoch 26/100

863/1000 [========================>.....] - ETA: 1:59 - rpn\_cls: 2.1373 - rpn\_regr: 0.1211 - detector\_cls: 1.0851 - detector\_regr: 0.1808Average number of overlapping bounding boxes from RPN = 15.954 for 1000 previous iterations

1000/1000 [==============================] - 874s 874ms/step - rpn\_cls: 2.0644 - rpn\_regr: 0.1176 - detector\_cls: 1.0846 - detector\_regr: 0.1781

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.006

Classifier accuracy for bounding boxes from RPN: 0.64721875

Loss RPN classifier: 2.064398193836555

Loss RPN regression: 0.11761174763436429

Loss Detector classifier: 1.0846403849869966

Loss Detector regression: 0.1780581700205803

Elapsed time: 875.8018789291382

Epoch 27/100

862/1000 [========================>.....] - ETA: 2:05 - rpn\_cls: 2.0329 - rpn\_regr: 0.1173 - detector\_cls: 1.0991 - detector\_regr: 0.1759Average number of overlapping bounding boxes from RPN = 16.329 for 1000 previous iterations

1000/1000 [==============================] - 903s 903ms/step - rpn\_cls: 2.0233 - rpn\_regr: 0.1174 - detector\_cls: 1.0991 - detector\_regr: 0.1748

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.32867132867133

Classifier accuracy for bounding boxes from RPN: 0.648

Loss RPN classifier: 2.023268294525556

Loss RPN regression: 0.11744380490481854

Loss Detector classifier: 1.0991185441948474

Loss Detector regression: 0.17477742005512117

Elapsed time: 902.8693425655365

Epoch 28/100

862/1000 [========================>.....] - ETA: 2:03 - rpn\_cls: 2.0914 - rpn\_regr: 0.1256 - detector\_cls: 1.1198 - detector\_regr: 0.1802Average number of overlapping bounding boxes from RPN = 16.819 for 1000 previous iterations

1000/1000 [==============================] - 892s 892ms/step - rpn\_cls: 2.0542 - rpn\_regr: 0.1241 - detector\_cls: 1.1044 - detector\_regr: 0.1789

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.544

Classifier accuracy for bounding boxes from RPN: 0.64603125

Loss RPN classifier: 2.0541822792589532

Loss RPN regression: 0.12411650890833698

Loss Detector classifier: 1.1043798509519547

Loss Detector regression: 0.17892612751061096

Elapsed time: 891.781765460968

Epoch 29/100

862/1000 [========================>.....] - ETA: 1:59 - rpn\_cls: 2.0432 - rpn\_regr: 0.1129 - detector\_cls: 1.0702 - detector\_regr: 0.1709Average number of overlapping bounding boxes from RPN = 15.789 for 1000 previous iterations

1000/1000 [==============================] - 869s 869ms/step - rpn\_cls: 2.0205 - rpn\_regr: 0.1129 - detector\_cls: 1.0602 - detector\_regr: 0.1701

Mean number of bounding boxes from RPN overlapping ground truth boxes: 15.98

Classifier accuracy for bounding boxes from RPN: 0.65321875

Loss RPN classifier: 2.020517426422035

Loss RPN regression: 0.11294829304516316

Loss Detector classifier: 1.0601769227683544

Loss Detector regression: 0.1700683421343565

Elapsed time: 869.0826642513275

Total loss decreased from 3.3767243363209793 to 3.363710984369909, saving weights

Epoch 30/100

862/1000 [========================>.....] - ETA: 2:00 - rpn\_cls: 1.9370 - rpn\_regr: 0.1101 - detector\_cls: 1.0958 - detector\_regr: 0.1686Average number of overlapping bounding boxes from RPN = 16.644 for 1000 previous iterations

1000/1000 [==============================] - 872s 872ms/step - rpn\_cls: 1.9500 - rpn\_regr: 0.1139 - detector\_cls: 1.0913 - detector\_regr: 0.1707

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.692307692307693

Classifier accuracy for bounding boxes from RPN: 0.64653125

Loss RPN classifier: 1.9499865106552352

Loss RPN regression: 0.113937847981113

Loss Detector classifier: 1.0912854563966394

Loss Detector regression: 0.17069267155975104

Elapsed time: 873.2852039337158

Total loss decreased from 3.363710984369909 to 3.325902486592739, saving weights

Epoch 31/100

859/1000 [========================>.....] - ETA: 2:00 - rpn\_cls: 1.9669 - rpn\_regr: 0.1033 - detector\_cls: 1.1122 - detector\_regr: 0.1665Average number of overlapping bounding boxes from RPN = 16.835 for 1000 previous iterations

1000/1000 [==============================] - 854s 854ms/step - rpn\_cls: 1.9641 - rpn\_regr: 0.1056 - detector\_cls: 1.1032 - detector\_regr: 0.1667

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.663010967098703

Classifier accuracy for bounding boxes from RPN: 0.6418125

Loss RPN classifier: 1.9640645071402307

Loss RPN regression: 0.10563404259621166

Loss Detector classifier: 1.1032160487791989

Loss Detector regression: 0.16674372415617109

Elapsed time: 856.1057784557343

Epoch 32/100

858/1000 [========================>.....] - ETA: 2:06 - rpn\_cls: 2.0193 - rpn\_regr: 0.1140 - detector\_cls: 1.1048 - detector\_regr: 0.1775Average number of overlapping bounding boxes from RPN = 16.095 for 1000 previous iterations

1000/1000 [==============================] - 890s 890ms/step - rpn\_cls: 1.9851 - rpn\_regr: 0.1154 - detector\_cls: 1.1031 - detector\_regr: 0.1761

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.214

Classifier accuracy for bounding boxes from RPN: 0.64334375

Loss RPN classifier: 1.9850657204442024

Loss RPN regression: 0.11540082797314971

Loss Detector classifier: 1.1030516926795244

Loss Detector regression: 0.17607308188453316

Elapsed time: 889.6686835289001

Epoch 33/100

857/1000 [========================>.....] - ETA: 2:06 - rpn\_cls: 1.9663 - rpn\_regr: 0.1089 - detector\_cls: 1.1132 - detector\_regr: 0.1733Average number of overlapping bounding boxes from RPN = 16.47 for 1000 previous iterations

1000/1000 [==============================] - 885s 885ms/step - rpn\_cls: 1.9734 - rpn\_regr: 0.1128 - detector\_cls: 1.1097 - detector\_regr: 0.1745

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.487512487512486

Classifier accuracy for bounding boxes from RPN: 0.64896875

Loss RPN classifier: 1.9734226260339842

Loss RPN regression: 0.11279254284501075

Loss Detector classifier: 1.1096820451617242

Loss Detector regression: 0.1745430129505694

Elapsed time: 884.7187433242798

Epoch 34/100

857/1000 [========================>.....] - ETA: 2:05 - rpn\_cls: 2.0350 - rpn\_regr: 0.1185 - detector\_cls: 1.1067 - detector\_regr: 0.1621Average number of overlapping bounding boxes from RPN = 16.695 for 1000 previous iterations

1000/1000 [==============================] - 883s 883ms/step - rpn\_cls: 1.9953 - rpn\_regr: 0.1140 - detector\_cls: 1.1084 - detector\_regr: 0.1618

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.865134865134866

Classifier accuracy for bounding boxes from RPN: 0.64109375

Loss RPN classifier: 1.9953494467203567

Loss RPN regression: 0.1139540909868665

Loss Detector classifier: 1.1083679559053854

Loss Detector regression: 0.1617657469920814

Elapsed time: 882.8118896484375

Epoch 35/100

856/1000 [========================>.....] - ETA: 2:06 - rpn\_cls: 1.9603 - rpn\_regr: 0.1097 - detector\_cls: 1.1116 - detector\_regr: 0.1702Average number of overlapping bounding boxes from RPN = 16.719 for 1000 previous iterations

1000/1000 [==============================] - 880s 880ms/step - rpn\_cls: 1.9877 - rpn\_regr: 0.1099 - detector\_cls: 1.1042 - detector\_regr: 0.1710

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.515

Classifier accuracy for bounding boxes from RPN: 0.6424375

Loss RPN classifier: 1.9876835907390953

Loss RPN regression: 0.10985094944108277

Loss Detector classifier: 1.104174930980429

Loss Detector regression: 0.1709513577222824

Elapsed time: 880.0826513767242

Epoch 36/100

856/1000 [========================>.....] - ETA: 2:04 - rpn\_cls: 1.8503 - rpn\_regr: 0.1007 - detector\_cls: 1.0583 - detector\_regr: 0.1635Average number of overlapping bounding boxes from RPN = 16.372 for 1000 previous iterations

1000/1000 [==============================] - 867s 867ms/step - rpn\_cls: 1.9248 - rpn\_regr: 0.1030 - detector\_cls: 1.0621 - detector\_regr: 0.1654

Mean number of bounding boxes from RPN overlapping ground truth boxes: 16.247

Classifier accuracy for bounding boxes from RPN: 0.6490625

Loss RPN classifier: 1.9247802576390558

Loss RPN regression: 0.10303589117177762

Loss Detector classifier: 1.062072904003784

Loss Detector regression: 0.16539383991993964

Elapsed time: 866.5144889354706

Total loss decreased from 3.325902486592739 to 3.255282892734557, saving weights

Epoch 37/100

427/1000 [===========>..................] - ETA: 8:28 - rpn\_cls: 2.0356 - rpn\_regr: 0.1095 - detector\_cls: 1.0602 - detector\_regr: 0.1625