Epoch 16/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.2409 - cls\_loss: 0.1559 - box\_loss: 0.0017 - reg\_l2\_loss: 0.1029 - loss: 0.3439 - learning\_rate: 0.0446 - gradient\_norm: 0.9956

Epoch 16: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-16

375/375 [==============================] - 396s 931ms/step - det\_loss: 0.2410 - cls\_loss: 0.1560 - box\_loss: 0.0017 - reg\_l2\_loss: 0.1029 - loss: 0.3440 - learning\_rate: 0.0446 - gradient\_norm: 0.9962 - val\_det\_loss: 0.2032 - val\_cls\_loss: 0.1505 - val\_box\_loss: 0.0011 - val\_reg\_l2\_loss: 0.1028 - val\_loss: 0.3060

Epoch 17/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.2196 - cls\_loss: 0.1446 - box\_loss: 0.0015 - reg\_l2\_loss: 0.1026 - loss: 0.3222 - learning\_rate: 0.0393 - gradient\_norm: 0.8489

Epoch 17: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-17

375/375 [==============================] - 336s 896ms/step - det\_loss: 0.2194 - cls\_loss: 0.1446 - box\_loss: 0.0015 - reg\_l2\_loss: 0.1026 - loss: 0.3220 - learning\_rate: 0.0393 - gradient\_norm: 0.8484

Epoch 18/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.2131 - cls\_loss: 0.1396 - box\_loss: 0.0015 - reg\_l2\_loss: 0.1021 - loss: 0.3152 - learning\_rate: 0.0340 - gradient\_norm: 0.8076

Epoch 18: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-18

375/375 [==============================] - 337s 900ms/step - det\_loss: 0.2130 - cls\_loss: 0.1396 - box\_loss: 0.0015 - reg\_l2\_loss: 0.1021 - loss: 0.3151 - learning\_rate: 0.0340 - gradient\_norm: 0.8071

Epoch 19/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1906 - cls\_loss: 0.1282 - box\_loss: 0.0012 - reg\_l2\_loss: 0.1016 - loss: 0.2922 - learning\_rate: 0.0290 - gradient\_norm: 0.7435

Epoch 19: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-19

375/375 [==============================] - 335s 894ms/step - det\_loss: 0.1905 - cls\_loss: 0.1282 - box\_loss: 0.0012 - reg\_l2\_loss: 0.1016 - loss: 0.2921 - learning\_rate: 0.0290 - gradient\_norm: 0.7428

Epoch 20/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1880 - cls\_loss: 0.1269 - box\_loss: 0.0012 - reg\_l2\_loss: 0.1011 - loss: 0.2891 - learning\_rate: 0.0242 - gradient\_norm: 0.7627

Epoch 20: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-20

375/375 [==============================] - 354s 944ms/step - det\_loss: 0.1880 - cls\_loss: 0.1269 - box\_loss: 0.0012 - reg\_l2\_loss: 0.1011 - loss: 0.2891 - learning\_rate: 0.0242 - gradient\_norm: 0.7621

Epoch 21/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1852 - cls\_loss: 0.1236 - box\_loss: 0.0012 - reg\_l2\_loss: 0.1006 - loss: 0.2859 - learning\_rate: 0.0198 - gradient\_norm: 0.7322

Epoch 21: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-21

375/375 [==============================] - 338s 901ms/step - det\_loss: 0.1851 - cls\_loss: 0.1236 - box\_loss: 0.0012 - reg\_l2\_loss: 0.1006 - loss: 0.2858 - learning\_rate: 0.0198 - gradient\_norm: 0.7318

Epoch 22/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1715 - cls\_loss: 0.1178 - box\_loss: 0.0011 - reg\_l2\_loss: 0.1002 - loss: 0.2717 - learning\_rate: 0.0156 - gradient\_norm: 0.7109

Epoch 22: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-22

375/375 [==============================] - 337s 898ms/step - det\_loss: 0.1715 - cls\_loss: 0.1178 - box\_loss: 0.0011 - reg\_l2\_loss: 0.1002 - loss: 0.2717 - learning\_rate: 0.0156 - gradient\_norm: 0.7104

Epoch 23/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1726 - cls\_loss: 0.1176 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0999 - loss: 0.2725 - learning\_rate: 0.0119 - gradient\_norm: 0.7166

Epoch 23: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-23

375/375 [==============================] - 336s 897ms/step - det\_loss: 0.1728 - cls\_loss: 0.1177 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0999 - loss: 0.2727 - learning\_rate: 0.0119 - gradient\_norm: 0.7164

Epoch 24/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1689 - cls\_loss: 0.1157 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0997 - loss: 0.2686 - learning\_rate: 0.0086 - gradient\_norm: 0.7325

Epoch 24: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-24

375/375 [==============================] - 336s 897ms/step - det\_loss: 0.1690 - cls\_loss: 0.1158 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0997 - loss: 0.2687 - learning\_rate: 0.0086 - gradient\_norm: 0.7328

Epoch 25/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1634 - cls\_loss: 0.1129 - box\_loss: 0.0010 - reg\_l2\_loss: 0.0995 - loss: 0.2629 - learning\_rate: 0.0058 - gradient\_norm: 0.7169

Epoch 25: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-25

375/375 [==============================] - 355s 946ms/step - det\_loss: 0.1634 - cls\_loss: 0.1129 - box\_loss: 0.0010 - reg\_l2\_loss: 0.0995 - loss: 0.2629 - learning\_rate: 0.0058 - gradient\_norm: 0.7167

Epoch 26/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1656 - cls\_loss: 0.1131 - box\_loss: 0.0010 - reg\_l2\_loss: 0.0994 - loss: 0.2650 - learning\_rate: 0.0036 - gradient\_norm: 0.7216

Epoch 26: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-26

375/375 [==============================] - 336s 895ms/step - det\_loss: 0.1658 - cls\_loss: 0.1133 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0994 - loss: 0.2652 - learning\_rate: 0.0036 - gradient\_norm: 0.7229

Epoch 27/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1583 - cls\_loss: 0.1098 - box\_loss: 9.6937e-04 - reg\_l2\_loss: 0.0993 - loss: 0.2576 - learning\_rate: 0.0018 - gradient\_norm: 0.7104

Epoch 27: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-27

375/375 [==============================] - 335s 892ms/step - det\_loss: 0.1581 - cls\_loss: 0.1097 - box\_loss: 9.6800e-04 - reg\_l2\_loss: 0.0993 - loss: 0.2574 - learning\_rate: 0.0018 - gradient\_norm: 0.7096

Epoch 28/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1609 - cls\_loss: 0.1113 - box\_loss: 9.9183e-04 - reg\_l2\_loss: 0.0992 - loss: 0.2601 - learning\_rate: 6.8396e-04 - gradient\_norm: 0.7195

Epoch 28: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-28

375/375 [==============================] - 337s 898ms/step - det\_loss: 0.1609 - cls\_loss: 0.1113 - box\_loss: 9.9189e-04 - reg\_l2\_loss: 0.0992 - loss: 0.2601 - learning\_rate: 6.8293e-04 - gradient\_norm: 0.7198

Epoch 29/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1706 - cls\_loss: 0.1153 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0992 - loss: 0.2698 - learning\_rate: 9.8130e-05 - gradient\_norm: 0.7964

Epoch 29: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-29

375/375 [==============================] - 336s 897ms/step - det\_loss: 0.1705 - cls\_loss: 0.1152 - box\_loss: 0.0011 - reg\_l2\_loss: 0.0992 - loss: 0.2697 - learning\_rate: 9.7869e-05 - gradient\_norm: 0.7955

Epoch 30/30

375/375 [==============================] - ETA: 0s - det\_loss: 0.1588 - cls\_loss: 0.1090 - box\_loss: 9.9523e-04 - reg\_l2\_loss: 0.0992 - loss: 0.2580 - learning\_rate: 9.7349e-05 - gradient\_norm: 0.7393

Epoch 30: saving model to /content/drive/My Drive/STEM\_1/dataset/try6/last\_layers/ckpt-30

375/375 [==============================] - 355s 947ms/step - det\_loss: 0.1588 - cls\_loss: 0.1090 - box\_loss: 9.9573e-04 - reg\_l2\_loss: 0.0992 - loss: 0.2580 - learning\_rate: 9.7865e-05 - gradient\_norm: 0.7397

<keras.callbacks.History at 0x7f71007f5d30>