Downloading data from <http://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz>

170500096/170498071 [==============================] - 23s

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Layer (type) Output Shape Param #

=================================================================

conv2d\_1 (Conv2D) (None, 32, 32, 192) 14592

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activation\_1 (Activation) (None, 32, 32, 192) 0

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conv2d\_2 (Conv2D) (None, 32, 32, 160) 30880

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activation\_2 (Activation) (None, 32, 32, 160) 0

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conv2d\_3 (Conv2D) (None, 32, 32, 96) 15456

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activation\_3 (Activation) (None, 32, 32, 96) 0

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max\_pooling2d\_1 (MaxPooling2 (None, 16, 16, 96) 0

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dropout\_1 (Dropout) (None, 16, 16, 96) 0

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conv2d\_4 (Conv2D) (None, 16, 16, 192) 460992

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activation\_4 (Activation) (None, 16, 16, 192) 0

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conv2d\_5 (Conv2D) (None, 16, 16, 192) 37056

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activation\_5 (Activation) (None, 16, 16, 192) 0

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conv2d\_6 (Conv2D) (None, 16, 16, 192) 37056

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activation\_6 (Activation) (None, 16, 16, 192) 0

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max\_pooling2d\_2 (MaxPooling2 (None, 8, 8, 192) 0

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dropout\_2 (Dropout) (None, 8, 8, 192) 0

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conv2d\_7 (Conv2D) (None, 8, 8, 192) 331968

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activation\_7 (Activation) (None, 8, 8, 192) 0

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conv2d\_8 (Conv2D) (None, 8, 8, 192) 37056

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activation\_8 (Activation) (None, 8, 8, 192) 0

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conv2d\_9 (Conv2D) (None, 8, 8, 10) 1930

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activation\_9 (Activation) (None, 8, 8, 10) 0

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global\_average\_pooling2d\_1 ( (None, 10) 0

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activation\_10 (Activation) (None, 10) 0

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Total params: 966,986

Trainable params: 966,986

Non-trainable params: 0

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None

Using real-time data augmentation.

Epoch 1/80

391/391 [==============================] - 59s - loss: 2.3692 - acc: 0.2099 - val\_loss: 2.1462 - val\_acc: 0.3292

Epoch 2/80

391/391 [==============================] - 60s - loss: 2.0627 - acc: 0.3718 - val\_loss: 1.9630 - val\_acc: 0.4273

Epoch 3/80

391/391 [==============================] - 59s - loss: 1.9136 - acc: 0.4369 - val\_loss: 1.8022 - val\_acc: 0.4562

Epoch 4/80

391/391 [==============================] - 59s - loss: 1.7283 - acc: 0.4761 - val\_loss: 1.6801 - val\_acc: 0.4980

Epoch 5/80

391/391 [==============================] - 59s - loss: 1.6319 - acc: 0.5076 - val\_loss: 1.6222 - val\_acc: 0.5266

Epoch 6/80

391/391 [==============================] - 59s - loss: 1.5129 - acc: 0.5520 - val\_loss: 1.3350 - val\_acc: 0.6019

Epoch 7/80

391/391 [==============================] - 59s - loss: 1.3076 - acc: 0.6089 - val\_loss: 1.2604 - val\_acc: 0.6233

Epoch 8/80

391/391 [==============================] - 59s - loss: 1.2282 - acc: 0.6397 - val\_loss: 1.1276 - val\_acc: 0.6707

Epoch 9/80

391/391 [==============================] - 59s - loss: 1.1634 - acc: 0.6634 - val\_loss: 1.1101 - val\_acc: 0.6825

Epoch 10/80

391/391 [==============================] - 59s - loss: 1.1139 - acc: 0.6813 - val\_loss: 1.0388 - val\_acc: 0.7113

Epoch 11/80

391/391 [==============================] - 59s - loss: 1.0724 - acc: 0.6964 - val\_loss: 1.0070 - val\_acc: 0.7205

Epoch 12/80

391/391 [==============================] - 59s - loss: 1.0330 - acc: 0.7113 - val\_loss: 1.0162 - val\_acc: 0.7142

Epoch 13/80

391/391 [==============================] - 59s - loss: 0.9984 - acc: 0.7212 - val\_loss: 1.0225 - val\_acc: 0.7167

Epoch 14/80

391/391 [==============================] - 59s - loss: 0.9701 - acc: 0.7327 - val\_loss: 0.9941 - val\_acc: 0.7340

Epoch 15/80

391/391 [==============================] - 59s - loss: 0.9417 - acc: 0.7448 - val\_loss: 0.9299 - val\_acc: 0.7483

Epoch 16/80

391/391 [==============================] - 59s - loss: 0.9126 - acc: 0.7557 - val\_loss: 0.9443 - val\_acc: 0.7475

Epoch 17/80

391/391 [==============================] - 59s - loss: 0.8910 - acc: 0.7599 - val\_loss: 0.8889 - val\_acc: 0.7666

Epoch 18/80

391/391 [==============================] - 59s - loss: 0.8720 - acc: 0.7697 - val\_loss: 0.8567 - val\_acc: 0.7769

Epoch 19/80

391/391 [==============================] - 59s - loss: 0.8503 - acc: 0.7733 - val\_loss: 0.8921 - val\_acc: 0.7634

Epoch 20/80

391/391 [==============================] - 59s - loss: 0.8367 - acc: 0.7793 - val\_loss: 0.8060 - val\_acc: 0.7892

Epoch 21/80

391/391 [==============================] - 59s - loss: 0.8181 - acc: 0.7856 - val\_loss: 0.8319 - val\_acc: 0.7832

Epoch 22/80

391/391 [==============================] - 59s - loss: 0.8037 - acc: 0.7915 - val\_loss: 0.8100 - val\_acc: 0.7915

Epoch 23/80

391/391 [==============================] - 59s - loss: 0.7933 - acc: 0.7953 - val\_loss: 0.7636 - val\_acc: 0.8053

Epoch 24/80

391/391 [==============================] - 59s - loss: 0.7791 - acc: 0.8007 - val\_loss: 0.7833 - val\_acc: 0.8064

Epoch 25/80

391/391 [==============================] - 59s - loss: 0.7630 - acc: 0.8082 - val\_loss: 0.8109 - val\_acc: 0.7892

Epoch 26/80

391/391 [==============================] - 59s - loss: 0.7522 - acc: 0.8099 - val\_loss: 0.7514 - val\_acc: 0.8094

Epoch 27/80

391/391 [==============================] - 59s - loss: 0.7425 - acc: 0.8122 - val\_loss: 0.7292 - val\_acc: 0.8223

Epoch 28/80

391/391 [==============================] - 59s - loss: 0.7327 - acc: 0.8170 - val\_loss: 0.7591 - val\_acc: 0.8139

Epoch 29/80

391/391 [==============================] - 59s - loss: 0.7225 - acc: 0.8193 - val\_loss: 0.7293 - val\_acc: 0.8220

Epoch 30/80

391/391 [==============================] - 59s - loss: 0.7174 - acc: 0.8208 - val\_loss: 0.7240 - val\_acc: 0.8244

Epoch 31/80

391/391 [==============================] - 59s - loss: 0.7010 - acc: 0.8262 - val\_loss: 0.7590 - val\_acc: 0.8099

Epoch 32/80

391/391 [==============================] - 59s - loss: 0.6972 - acc: 0.8285 - val\_loss: 0.6977 - val\_acc: 0.8288

Epoch 33/80

391/391 [==============================] - 59s - loss: 0.6830 - acc: 0.8321 - val\_loss: 0.7423 - val\_acc: 0.8217

Epoch 34/80

391/391 [==============================] - 59s - loss: 0.6743 - acc: 0.8367 - val\_loss: 0.6654 - val\_acc: 0.8409

Epoch 35/80

391/391 [==============================] - 59s - loss: 0.6697 - acc: 0.8353 - val\_loss: 0.6607 - val\_acc: 0.8400

Epoch 36/80

391/391 [==============================] - 59s - loss: 0.6609 - acc: 0.8400 - val\_loss: 0.6868 - val\_acc: 0.8339

Epoch 37/80

391/391 [==============================] - 59s - loss: 0.6585 - acc: 0.8401 - val\_loss: 0.6791 - val\_acc: 0.8403

Epoch 38/80

391/391 [==============================] - 59s - loss: 0.6525 - acc: 0.8423 - val\_loss: 0.6803 - val\_acc: 0.8337

Epoch 39/80

391/391 [==============================] - 59s - loss: 0.6430 - acc: 0.8450 - val\_loss: 0.6765 - val\_acc: 0.8390

Epoch 40/80

391/391 [==============================] - 59s - loss: 0.6341 - acc: 0.8470 - val\_loss: 0.7002 - val\_acc: 0.8321

Epoch 41/80

391/391 [==============================] - 59s - loss: 0.6331 - acc: 0.8486 - val\_loss: 0.6997 - val\_acc: 0.8306

Epoch 42/80

391/391 [==============================] - 59s - loss: 0.6246 - acc: 0.8518 - val\_loss: 0.6547 - val\_acc: 0.8430

Epoch 43/80

391/391 [==============================] - 59s - loss: 0.6206 - acc: 0.8526 - val\_loss: 0.6528 - val\_acc: 0.8499

Epoch 44/80

391/391 [==============================] - 59s - loss: 0.6142 - acc: 0.8531 - val\_loss: 0.6658 - val\_acc: 0.8464

Epoch 45/80

391/391 [==============================] - 59s - loss: 0.6083 - acc: 0.8580 - val\_loss: 0.6521 - val\_acc: 0.8451

Epoch 46/80

391/391 [==============================] - 59s - loss: 0.6023 - acc: 0.8592 - val\_loss: 0.7119 - val\_acc: 0.8297

Epoch 47/80

391/391 [==============================] - 59s - loss: 0.5973 - acc: 0.8602 - val\_loss: 0.6485 - val\_acc: 0.8486

Epoch 48/80

391/391 [==============================] - 59s - loss: 0.5927 - acc: 0.8605 - val\_loss: 0.6653 - val\_acc: 0.8475

Epoch 49/80

391/391 [==============================] - 59s - loss: 0.5846 - acc: 0.8641 - val\_loss: 0.6462 - val\_acc: 0.8518

Epoch 50/80

391/391 [==============================] - 59s - loss: 0.5819 - acc: 0.8647 - val\_loss: 0.6471 - val\_acc: 0.8509

Epoch 51/80

391/391 [==============================] - 59s - loss: 0.5766 - acc: 0.8676 - val\_loss: 0.6536 - val\_acc: 0.8473

Epoch 52/80

391/391 [==============================] - 59s - loss: 0.5732 - acc: 0.8682 - val\_loss: 0.6527 - val\_acc: 0.8493

Epoch 53/80

391/391 [==============================] - 59s - loss: 0.5709 - acc: 0.8681 - val\_loss: 0.6424 - val\_acc: 0.8548

Epoch 54/80

391/391 [==============================] - 59s - loss: 0.5663 - acc: 0.8708 - val\_loss: 0.6443 - val\_acc: 0.8520

Epoch 55/80

391/391 [==============================] - 59s - loss: 0.5632 - acc: 0.8719 - val\_loss: 0.6127 - val\_acc: 0.8658

Epoch 56/80

391/391 [==============================] - 59s - loss: 0.5574 - acc: 0.8718 - val\_loss: 0.5866 - val\_acc: 0.8658

Epoch 57/80

391/391 [==============================] - 59s - loss: 0.5502 - acc: 0.8743 - val\_loss: 0.6316 - val\_acc: 0.8563

Epoch 58/80

391/391 [==============================] - 59s - loss: 0.5506 - acc: 0.8755 - val\_loss: 0.6409 - val\_acc: 0.8518

Epoch 59/80

391/391 [==============================] - 59s - loss: 0.5510 - acc: 0.8748 - val\_loss: 0.6126 - val\_acc: 0.8621

Epoch 60/80

391/391 [==============================] - 59s - loss: 0.5416 - acc: 0.8782 - val\_loss: 0.6099 - val\_acc: 0.8613

Epoch 61/80

391/391 [==============================] - 59s - loss: 0.5398 - acc: 0.8770 - val\_loss: 0.6382 - val\_acc: 0.8577

Epoch 62/80

391/391 [==============================] - 59s - loss: 0.5354 - acc: 0.8799 - val\_loss: 0.6290 - val\_acc: 0.8592

Epoch 63/80

391/391 [==============================] - 59s - loss: 0.5342 - acc: 0.8818 - val\_loss: 0.5896 - val\_acc: 0.8661

Epoch 64/80

391/391 [==============================] - 59s - loss: 0.5254 - acc: 0.8840 - val\_loss: 0.6263 - val\_acc: 0.8605

Epoch 65/80

391/391 [==============================] - 59s - loss: 0.5234 - acc: 0.8835 - val\_loss: 0.6400 - val\_acc: 0.8558

Epoch 66/80

391/391 [==============================] - 59s - loss: 0.5209 - acc: 0.8852 - val\_loss: 0.6071 - val\_acc: 0.8645

Epoch 67/80

391/391 [==============================] - 59s - loss: 0.5242 - acc: 0.8847 - val\_loss: 0.6170 - val\_acc: 0.8601

Epoch 68/80

391/391 [==============================] - 59s - loss: 0.5141 - acc: 0.8868 - val\_loss: 0.6413 - val\_acc: 0.8553

Epoch 69/80

391/391 [==============================] - 59s - loss: 0.5141 - acc: 0.8872 - val\_loss: 0.6302 - val\_acc: 0.8560

Epoch 70/80

391/391 [==============================] - 59s - loss: 0.5146 - acc: 0.8861 - val\_loss: 0.6094 - val\_acc: 0.8656

Epoch 71/80

391/391 [==============================] - 59s - loss: 0.5099 - acc: 0.8876 - val\_loss: 0.6239 - val\_acc: 0.8628

Epoch 72/80

391/391 [==============================] - 59s - loss: 0.5055 - acc: 0.8888 - val\_loss: 0.5704 - val\_acc: 0.8717

Epoch 73/80

391/391 [==============================] - 59s - loss: 0.5081 - acc: 0.8894 - val\_loss: 0.6021 - val\_acc: 0.8601

Epoch 74/80

391/391 [==============================] - 59s - loss: 0.5012 - acc: 0.8908 - val\_loss: 0.6050 - val\_acc: 0.8679

Epoch 75/80

391/391 [==============================] - 59s - loss: 0.4985 - acc: 0.8915 - val\_loss: 0.5868 - val\_acc: 0.8687

Epoch 76/80

391/391 [==============================] - 59s - loss: 0.4992 - acc: 0.8935 - val\_loss: 0.6157 - val\_acc: 0.8670

Epoch 77/80

391/391 [==============================] - 59s - loss: 0.4936 - acc: 0.8940 - val\_loss: 0.5936 - val\_acc: 0.8699

Epoch 78/80

391/391 [==============================] - 59s - loss: 0.4947 - acc: 0.8933 - val\_loss: 0.6098 - val\_acc: 0.8620

Epoch 79/80

391/391 [==============================] - 59s - loss: 0.4856 - acc: 0.8960 - val\_loss: 0.5644 - val\_acc: 0.8738

Epoch 80/80

391/391 [==============================] - 59s - loss: 0.4891 - acc: 0.8939 - val\_loss: 0.6044 - val\_acc: 0.8663