2021 SMARCLE 겨울방학 스터디 총결산

HOW TO Deal With Pretrained Model

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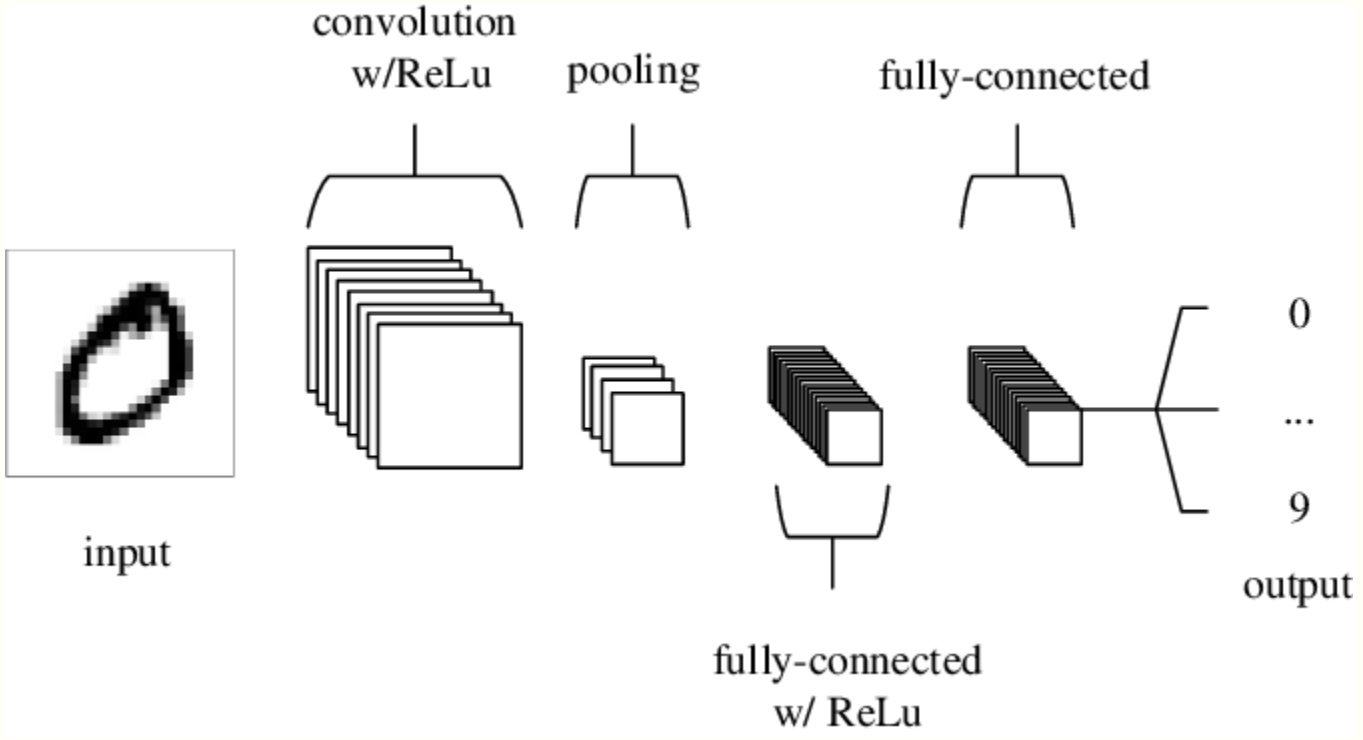

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@ 9회차 모딥 9회차 실습예시(이은지).ipynb

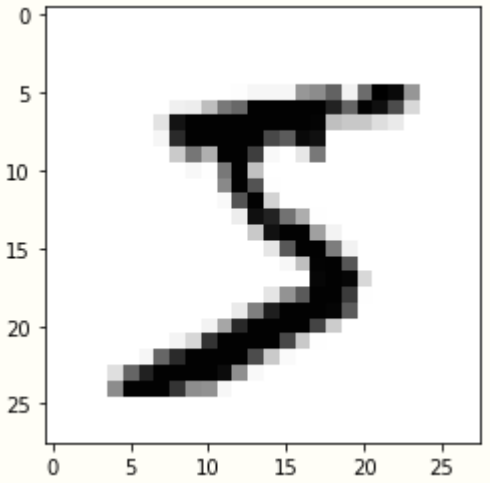
```
Epoch 15/5000
118/118 [==============================] - 3s 22ms/step - loss: 0.0062 - accuracy: 0.9982 - val_loss: 0.0307 - val_accuracy: 0.9901
Epoch 16/5000
118/118 [==============================] - 3s 22ms/step - loss: 0.0082 - accuracy: 0.9974 - val_loss: 0.0314 - val_accuracy: 0.9912
Epoch 00016: early stopping
```

Out[ ]: <tensorflow.python.keras.callbacks.History at 0x7fbc344d94e0>

In [ ]:
```
model.evaluate(x_test,y_test)[1]
```

```
313/313 [==============================] - 1s 2ms/step - loss: 0.0314 - accuracy: 0.9912
```

Out[ ]: 0.9911999702453613



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```
Model: "sequential"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d (Conv2D)              (None, 26, 26, 32)        320
_________________________________________________________________
max_pooling2d (MaxPooling2D) (None, 13, 13, 32)        0
_________________________________________________________________
flatten (Flatten)            (None, 5408)              0
_________________________________________________________________
dense (Dense)                (None, 10)                54090
=================================================================
Total params: 54,410
Trainable params: 54,410
Non-trainable params: 0
_________________________________________________________________
```

```
Epoch 1/5
1875/1875 [==============================] - 3s 2ms/step - loss: 0.6184 - accuracy: 0.84
Epoch 2/5
1875/1875 [==============================] - 3s 2ms/step - loss: 0.2654 - accuracy: 0.92
Epoch 3/5
1875/1875 [==============================] - 3s 2ms/step - loss: 0.2152 - accuracy: 0.93
Epoch 4/5
1875/1875 [==============================] - 3s 2ms/step - loss: 0.1801 - accuracy: 0.94
Epoch 5/5
1875/1875 [==============================] - 3s 2ms/step - loss: 0.1536 - accuracy: 0.95
313/313 [==============================] - 0s 2ms/step - loss: 0.1376 - accuracy: 0.96
[0.1376066356897354, 0.9620000123977661]
```

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```
Model: "sequential_11"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d_32 (Conv2D)           (None, 26, 26, 32)        320
_________________________________________________________________
conv2d_33 (Conv2D)           (None, 24, 24, 32)        9248
_________________________________________________________________
max_pooling2d_29 (MaxPooling (None, 12, 12, 32)        0
_________________________________________________________________
dropout_8 (Dropout)          (None, 12, 12, 32)        0
_________________________________________________________________
conv2d_34 (Conv2D)           (None, 10, 10, 64)        18496
_________________________________________________________________
max_pooling2d_30 (MaxPooling (None, 5, 5, 64)          0
_________________________________________________________________
conv2d_35 (Conv2D)           (None, 3, 3, 128)         73856
_________________________________________________________________
max_pooling2d_31 (MaxPooling (None, 1, 1, 128)         0
_________________________________________________________________
flatten_11 (Flatten)         (None, 128)               0
_________________________________________________________________
dense_11 (Dense)             (None, 10)                1290
=================================================================
Total params: 103,210
Trainable params: 103,210
Non-trainable params: 0
```

```
Epoch 1/5
1875/1875 [==============================] - 6s 3ms/step - loss: 0.4507 - accuracy: 0.86
Epoch 2/5
1875/1875 [==============================] - 6s 3ms/step - loss: 0.1364 - accuracy: 0.95
Epoch 3/5
1875/1875 [==============================] - 7s 4ms/step - loss: 0.0991 - accuracy: 0.97
Epoch 4/5
1875/1875 [==============================] - 7s 4ms/step - loss: 0.0802 - accuracy: 0.97
Epoch 5/5
1875/1875 [==============================] - 7s 4ms/step - loss: 0.0677 - accuracy: 0.97
313/313 [==============================] - 1s 2ms/step - loss: 0.0554 - accuracy: 0.98
[0.05540342256426811, 0.9814000129699707]
```

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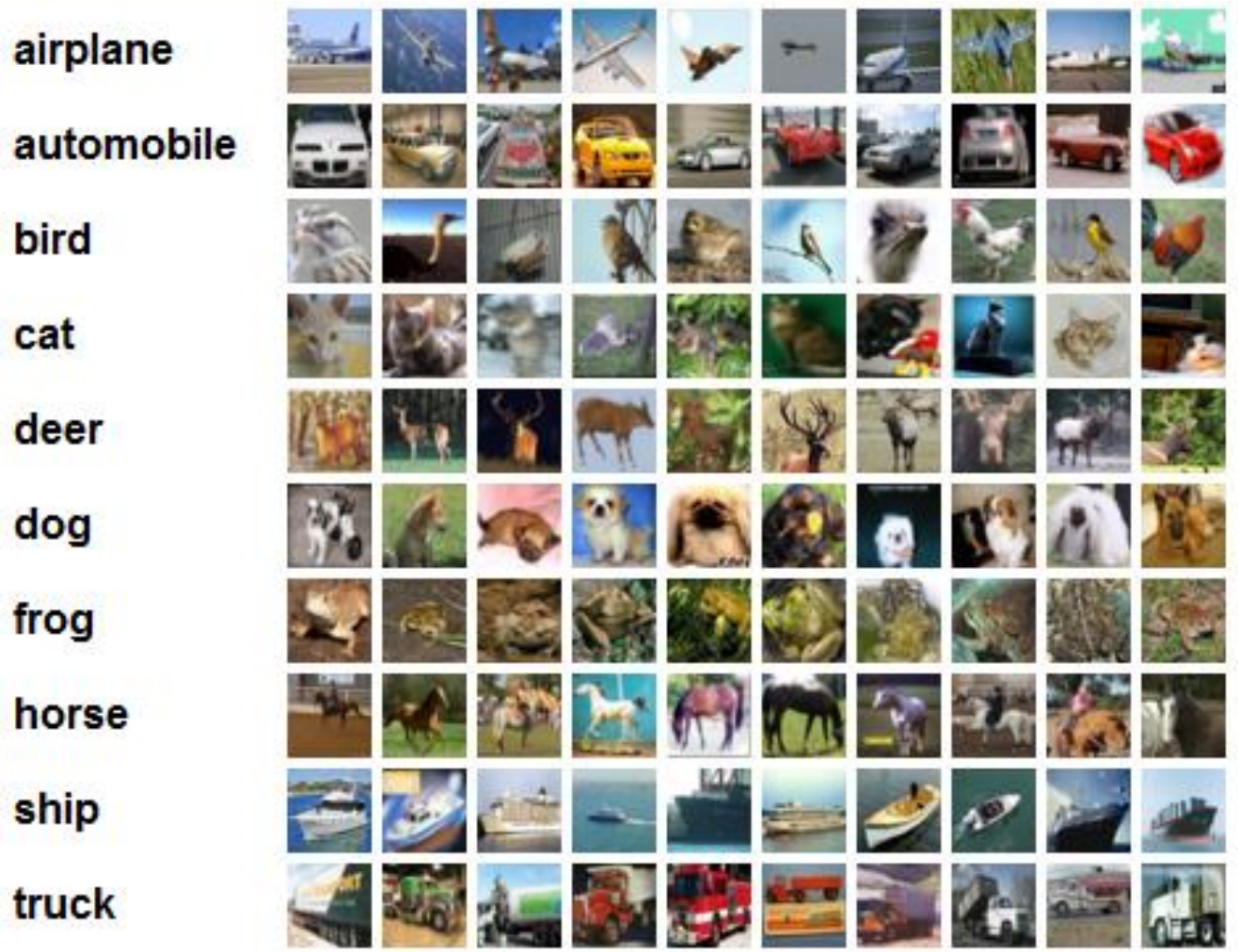
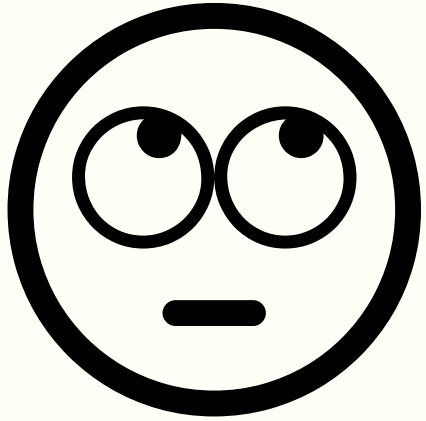
cifar 10 dataset





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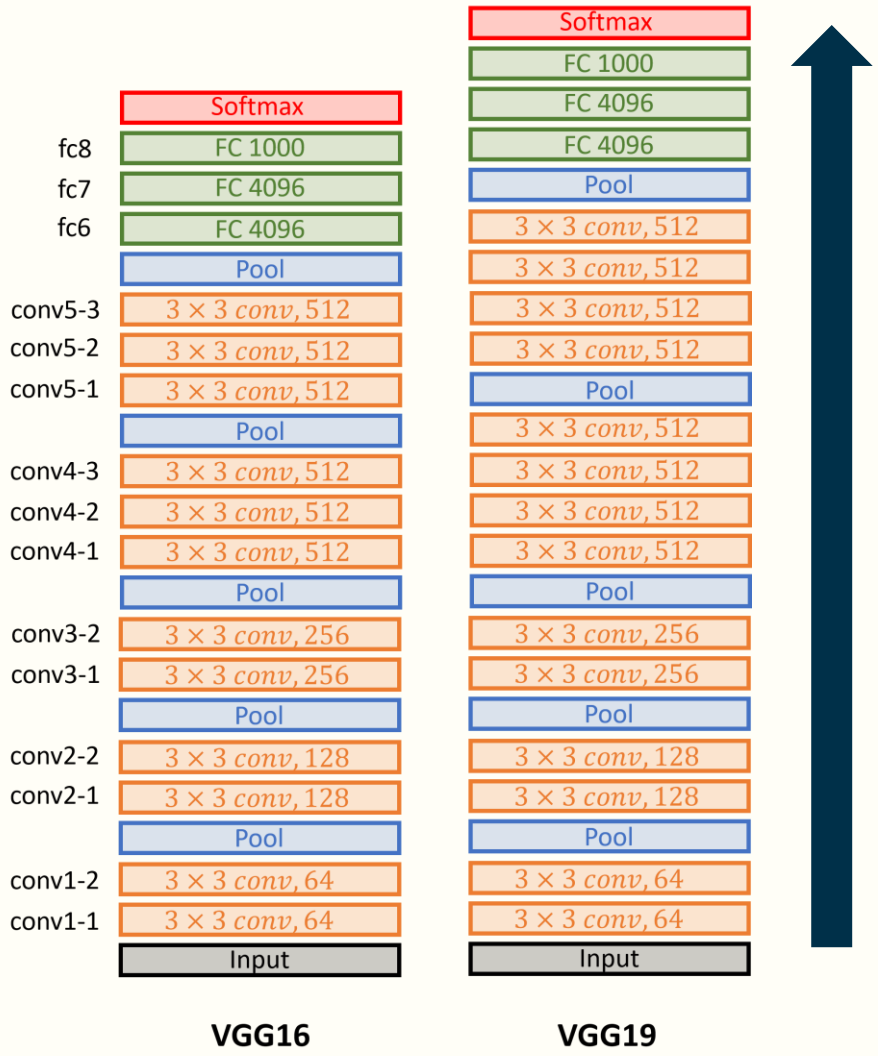
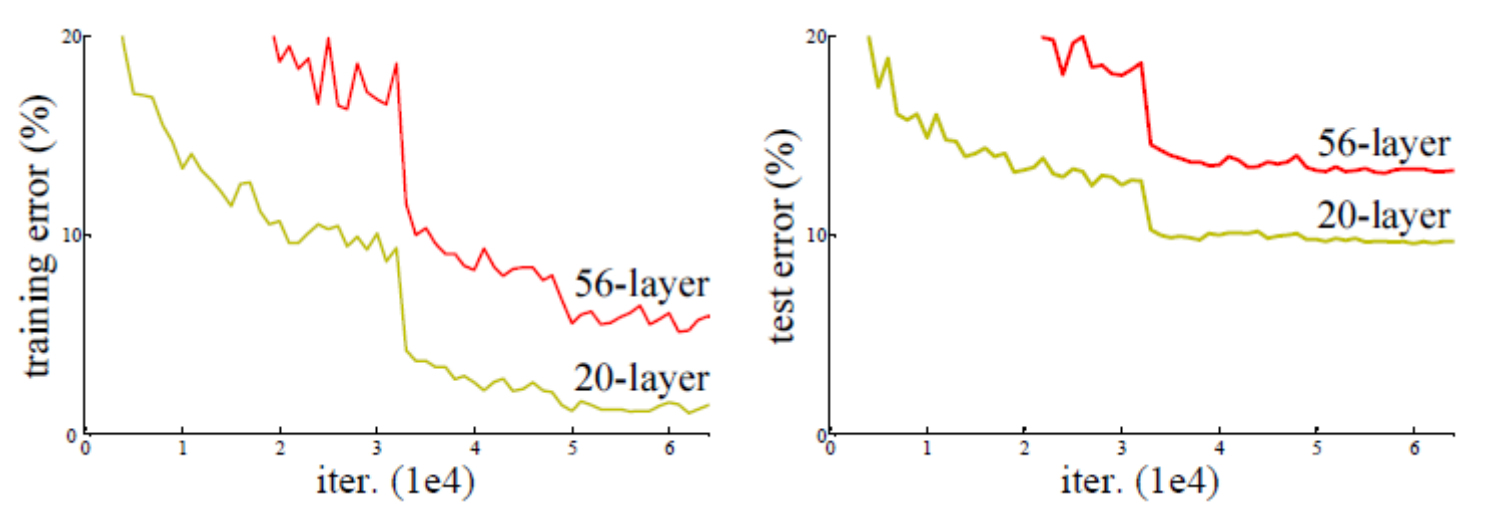
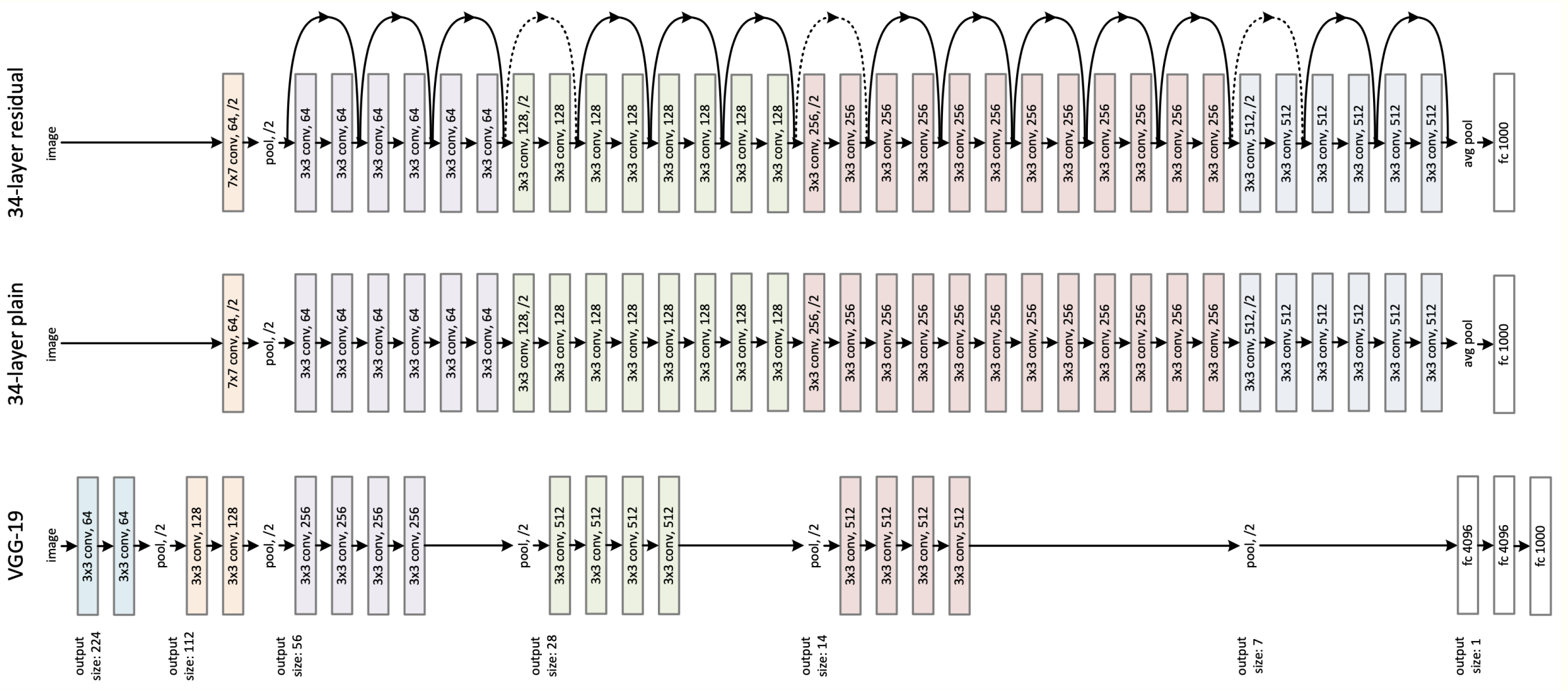
그저 Deeeeeeeeep 한게 좋은 것인가?



그저 Deeeeeeeeep 한게 좋은 것인가?



다양한 접근



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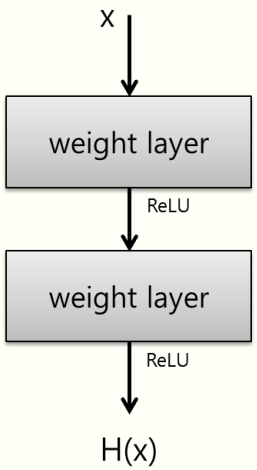
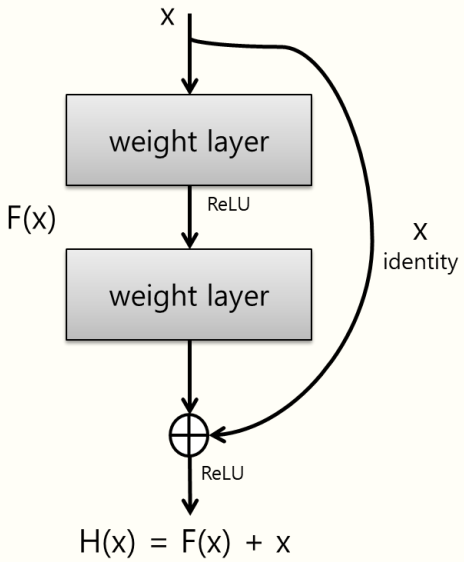
다양한 접근

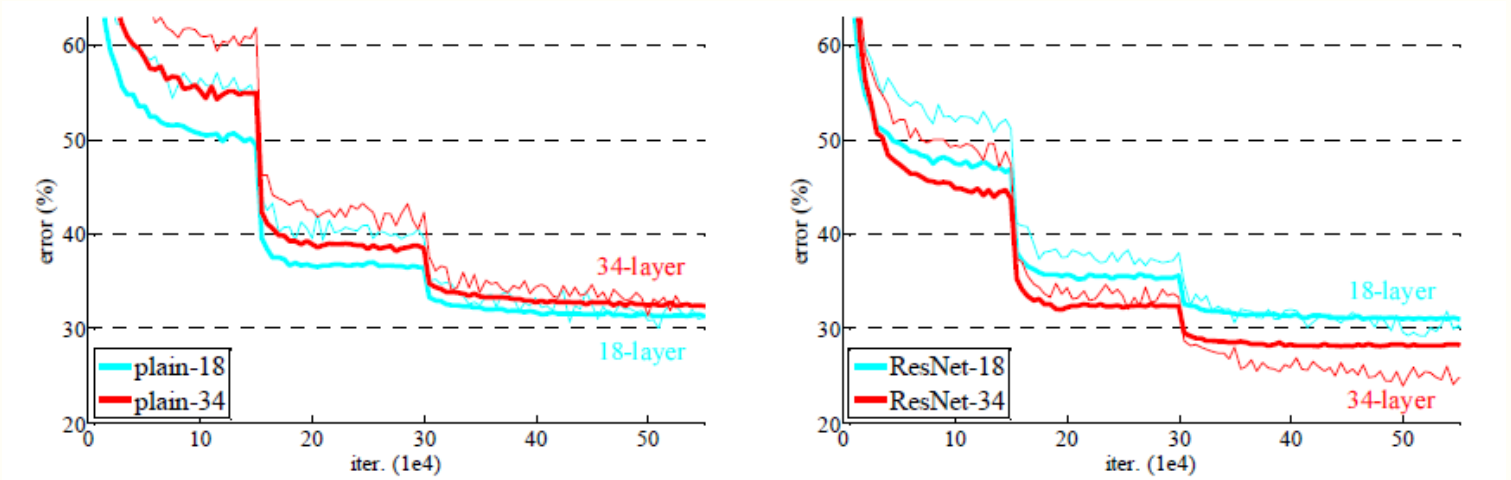


기존 방식



Residual block

2015 ILSVRC: ImageNet Large Scale Visual Recognition Competition



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다양한 접근

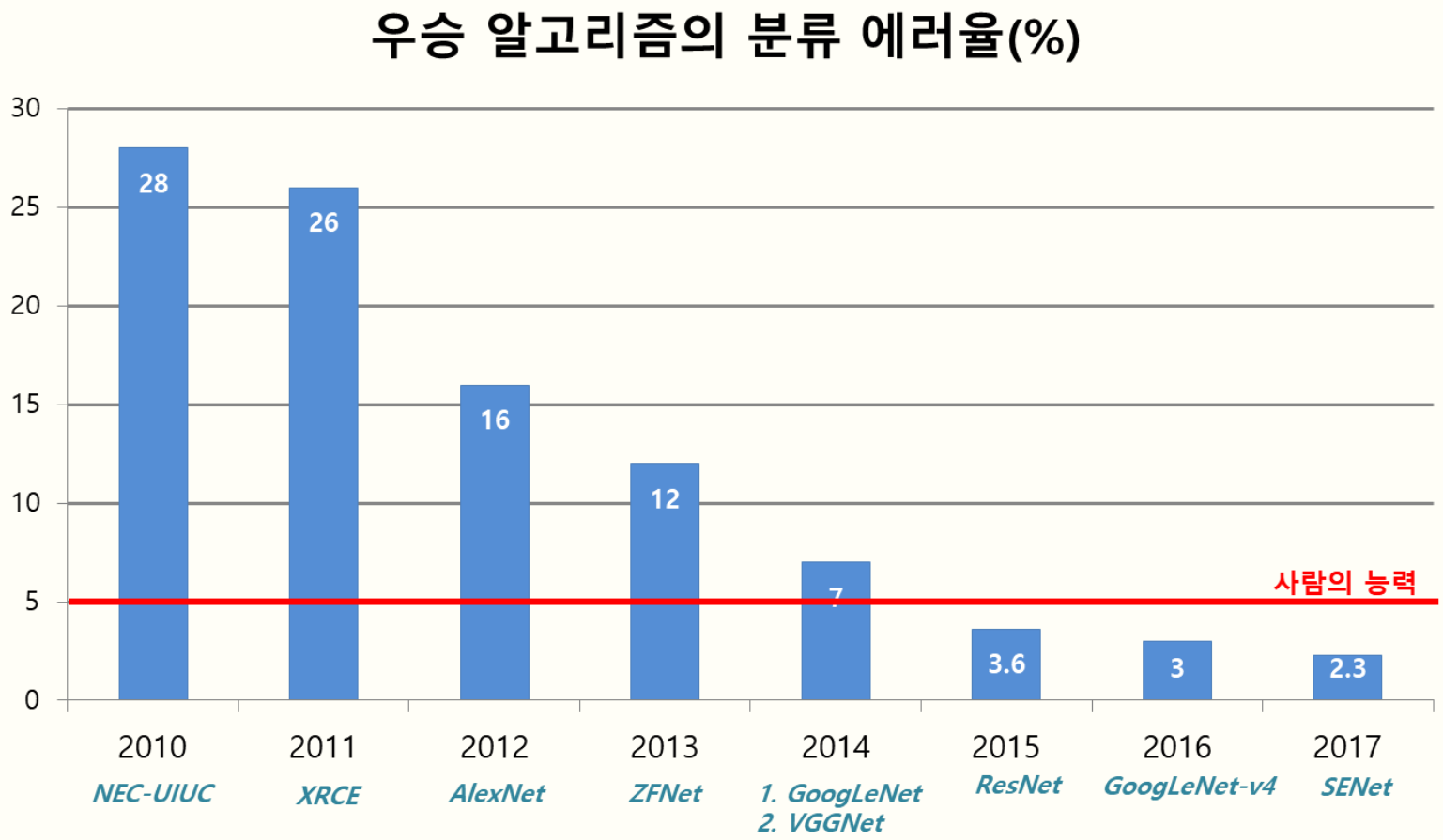

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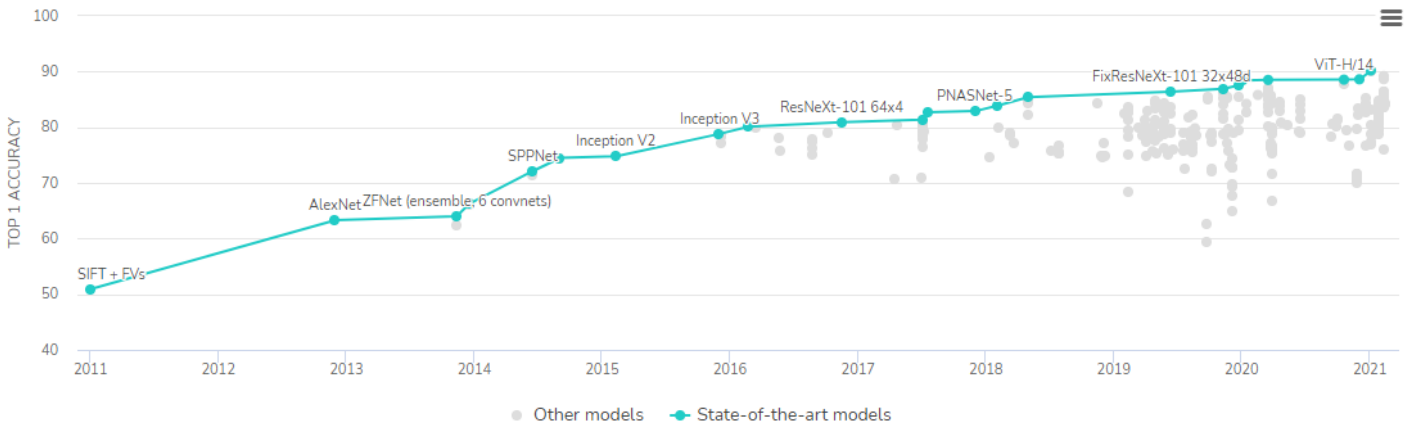
Image Classification on ImageNet

Leaderboard Dataset



View Top 1 Accuracy All models Edit

RANK	MODEL	TOP 1 ACCURACY	TOP 5 ACCURACY	NUMBER OF PARAMS	EXTRA TRAINING DATA	PAPER	CODE	RESULT	YEAR
1	Meta Pseudo Labels (EfficientNet-L2)	90.2%	98.8%	480M	✓	Meta Pseudo Labels			2021
2	Meta Pseudo Labels (EfficientNet-B6-Wide)	90%	98.7%	390M	✓	Meta Pseudo Labels			2021
3	NFNet-F4+	89.2%		527M	✓	High-Performance Large-Scale Image Recognition Without Normalization			2021

https://paperswithcode.com/sota/image-classification-on-imagenet

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Transfer Learning With Pretrained Model

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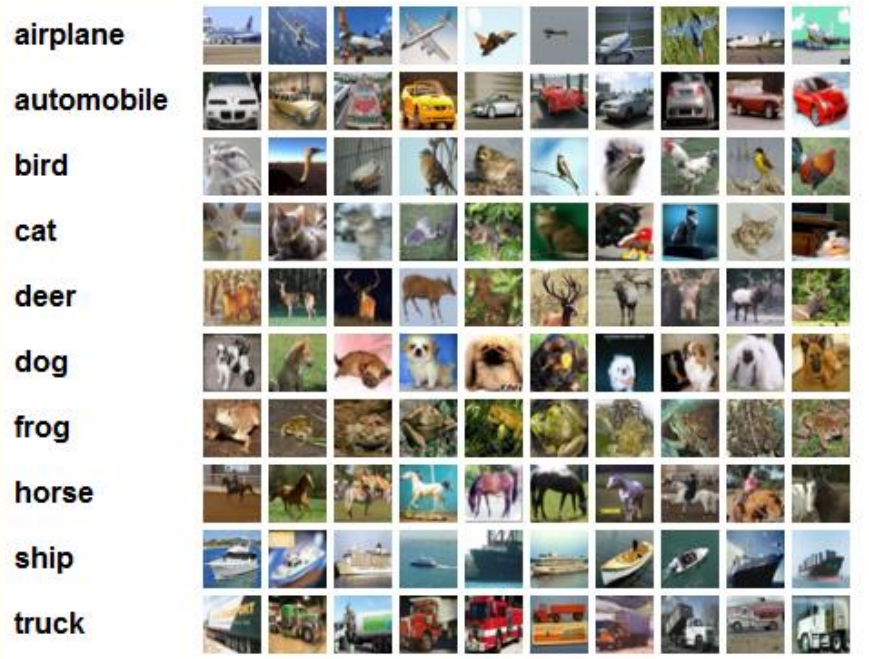
Transfer Learning With Pretrained Model



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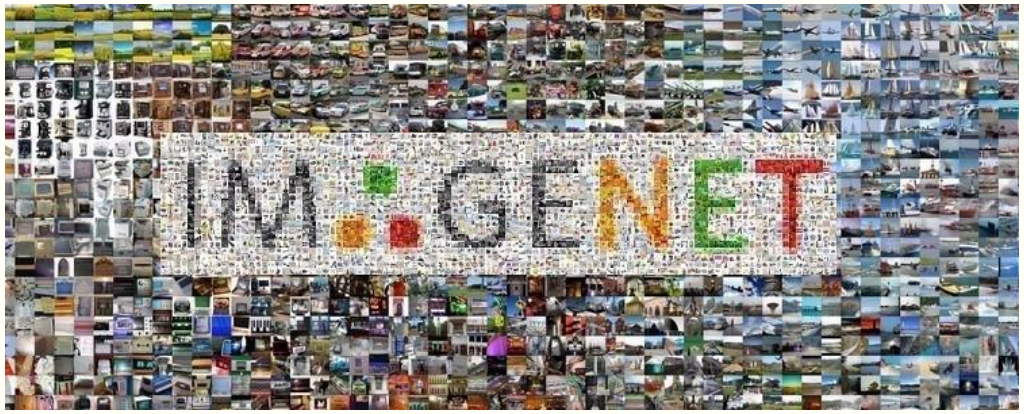
Transfer Learning With Pretrained Model



http://www.image-net.org/

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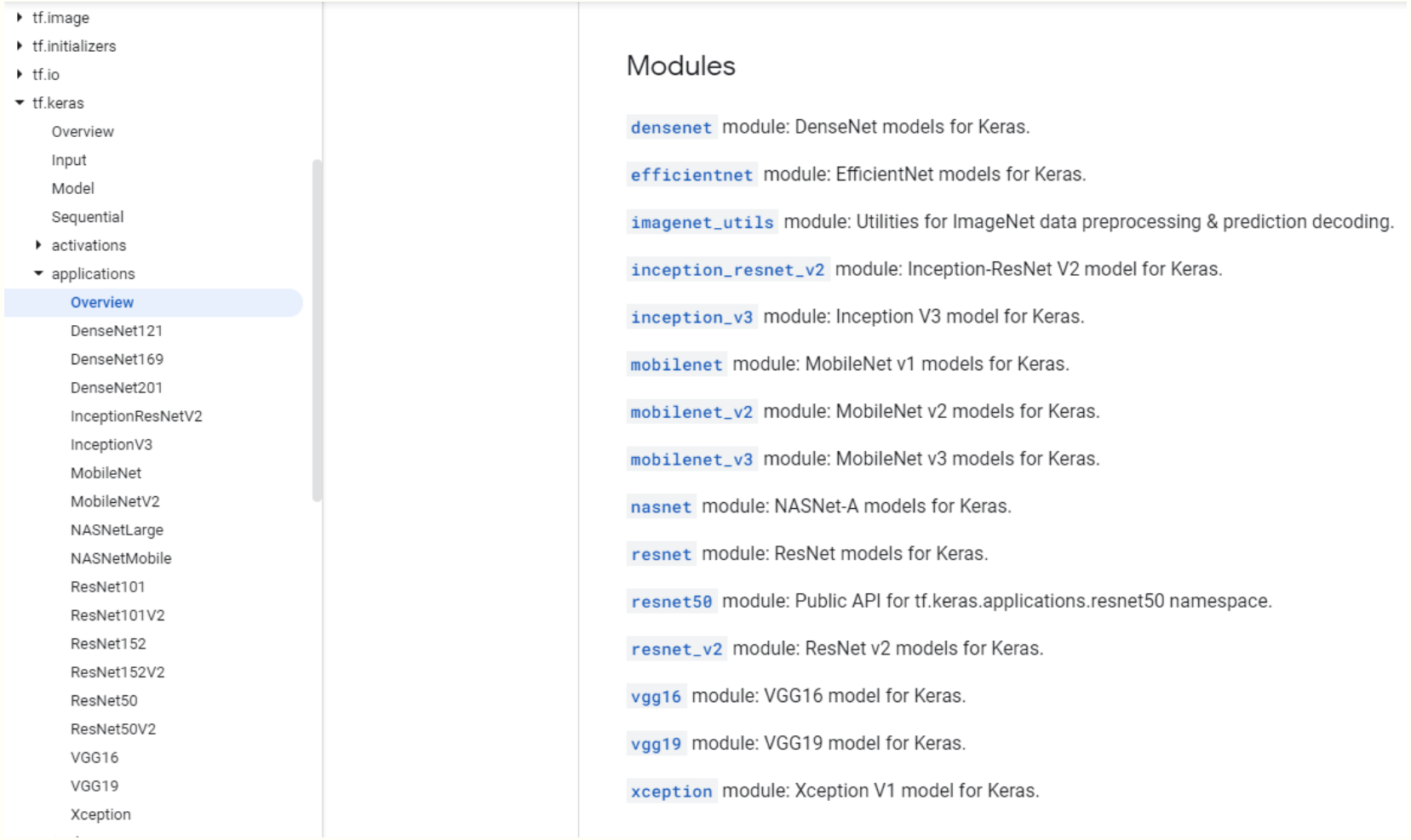
Transfer Learning With Pretrained Model



https://www.tensorflow.org/api_docs/python/tf/keras/applications

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@ crawling code by 김찬영

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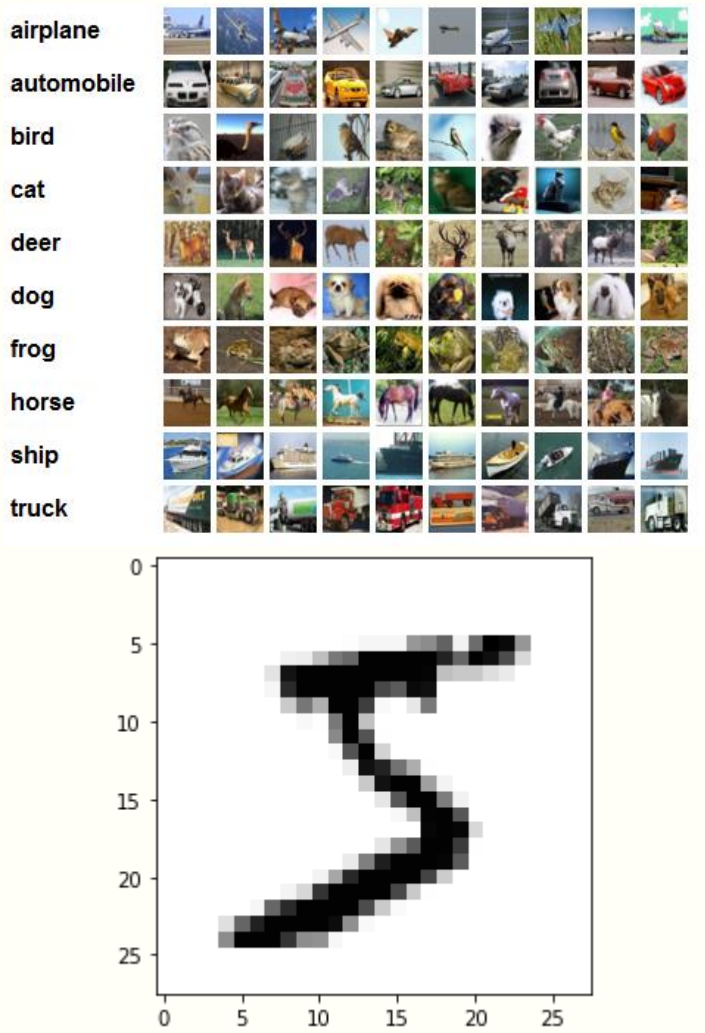

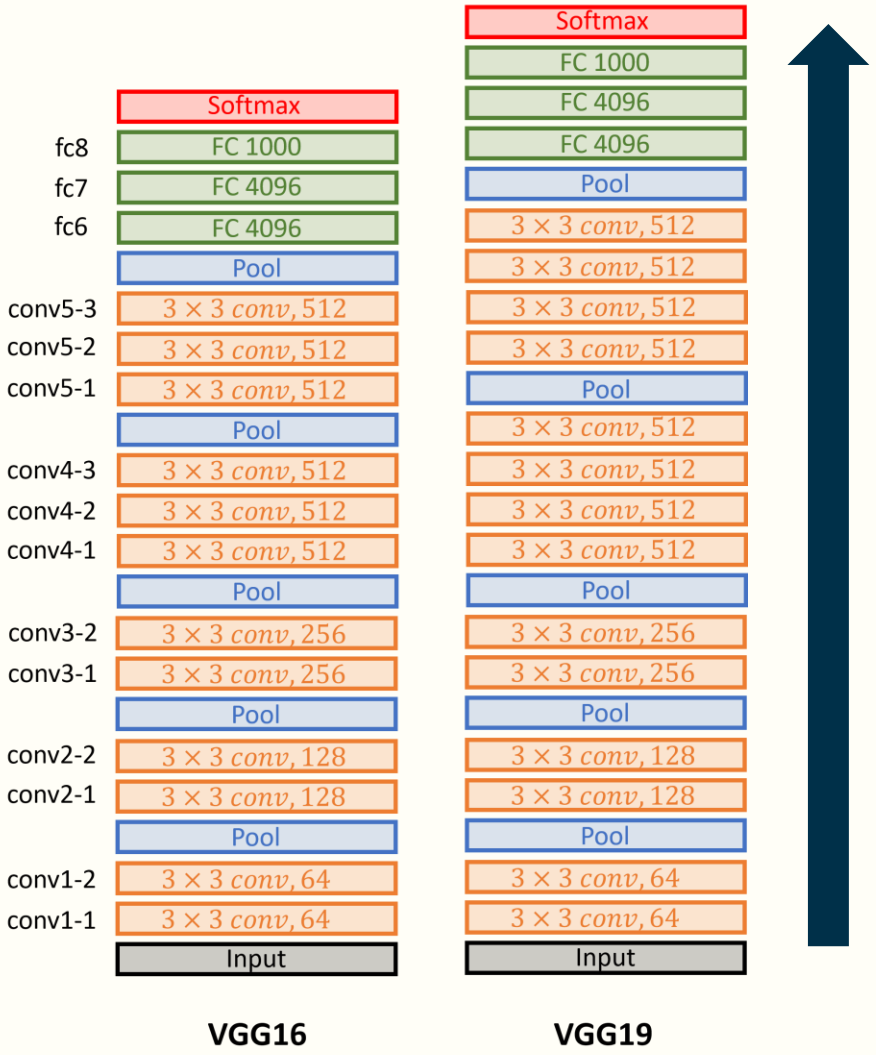

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QnA