

Lab4 Report

我們使用 Skew_food11 當作資料，model 使用 Resnet34，

baseline 的結果為 87.3021%

(a)global sparsity = 50%的 accuracy 結果為 81.7150%

```
Global sparsity: 0.500000
conv1.weight: 26.7857%
layer1.conv1.weight: 38.2812%
layer1.conv2.weight: 28.8167%
layer1.conv1.weight: 26.7036%
layer1.conv2.weight: 27.5472%
layer1.conv1.weight: 25.9766%
layer1.conv2.weight: 29.1775%
layer2.conv1.weight: 28.8561%
layer2.conv2.weight: 37.2959%
layer2.conv1.weight: 38.2907%
layer2.conv2.weight: 37.7001%
layer2.conv1.weight: 35.0979%
layer2.conv2.weight: 36.1620%
layer2.conv1.weight: 32.6158%
layer2.conv2.weight: 40.3917%
layer3.conv1.weight: 34.8518%
layer3.conv2.weight: 38.9386%
layer3.conv1.weight: 47.8817%
layer3.conv2.weight: 46.8018%
layer3.conv1.weight: 46.2192%
layer3.conv2.weight: 49.1801%
layer3.conv1.weight: 46.9613%
layer3.conv2.weight: 53.7657%
layer3.conv1.weight: 45.7425%
layer3.conv2.weight: 52.2598%
layer3.conv1.weight: 43.9696%
layer3.conv2.weight: 49.8152%
layer4.conv1.weight: 41.2618%
layer4.conv2.weight: 50.4551%
layer4.conv1.weight: 52.3453%
layer4.conv2.weight: 57.8268%
layer4.conv1.weight: 49.5817%
layer4.conv2.weight: 61.7079%
fc.weight: 17.7202%
fc.bias: 18.1818%
test accuracy: 81.7150
```

嘗試讓 accuracy drop 20%以內的 global sparsity 為 66%，

accuracy 為 68.2402%

```
Global sparsity: 0.660000
conv1.weight: 31.2819%
layer1.conv1.weight: 47.1029%
layer1.conv2.weight: 40.1150%
layer1.conv1.weight: 37.3237%
layer1.conv2.weight: 38.5471%
layer1.conv1.weight: 36.2766%
layer1.conv2.weight: 40.0282%
layer2.conv1.weight: 39.7841%
layer2.conv2.weight: 50.1065%
layer2.conv1.weight: 51.9294%
layer2.conv2.weight: 51.2533%
layer2.conv1.weight: 48.2402%
layer2.conv2.weight: 49.7186%
layer2.conv1.weight: 44.9755%
layer2.conv2.weight: 54.1707%
layer3.conv1.weight: 47.9892%
layer3.conv2.weight: 53.2008%
layer3.conv1.weight: 63.5927%
layer3.conv2.weight: 62.6275%
layer3.conv1.weight: 61.8969%
layer3.conv2.weight: 64.8463%
layer3.conv1.weight: 62.8128%
layer3.conv2.weight: 69.0620%
layer3.conv1.weight: 61.4553%
layer3.conv2.weight: 68.0445%
layer3.conv1.weight: 59.4342%
layer3.conv2.weight: 65.6767%
layer4.conv1.weight: 56.1504%
layer4.conv2.weight: 67.0260%
layer4.conv1.weight: 69.2615%
layer4.conv2.weight: 74.9685%
layer4.conv1.weight: 66.2186%
layer4.conv2.weight: 78.5155%
fc.weight: 25.7280%
fc.bias: 36.3636%
test accuracy: 68.2402
```

(b)

```
accuracy: 0.873
root@ae6c21a0e53b:/workspace/lab4# python3 b2.py --model lab4_model.xml --input food11re/evaluation/
Accuracy: 0.873, (2922/ 3347)
Total execution time: 68 s
Overhead: 296 ms
Loading and preprocessing average time: 8.163 ms
Inference average time: 11.162 ms
average latency: 20.396 ms
FPS without overhead: 49.030
FPS with overhead: 49.221
root@ae6c21a0e53b:/workspace/lab4#
```

(c)

```
root@ae6c21a0e53b:/workspace/lab4# accuracy_check -c accuracy_check.yml
Processing info:
model: resnet34
launcher: dlsdk
device: CPU
dataset: food11_datset
OpenCV version: 4.3.0-openvino
IE version: 2.1.42025
Loaded CPU plugin version:
CPU - MKLDNNPlugin: 2.1.42025
Input info:
  Layer name: input
  precision: FP32
  shape [1, 3, 224, 224]

Output info
  Layer name: Gemm_124
  precision: FP32
  shape: [1, 11]

3347 objects processed in 75.741 seconds
accuracy: 87.93%
root@ae6c21a0e53b:/workspace/lab4# _
```

(d)

```
root@ae6c21a0e53b:/workspace/lab4# python3 b2.py --model results/Resnet34_Default
Accuracy: 0.871, (2914/ 3347)
Total execution time: 60 s
Overhead: 833 ms
Loading and preprocessing average time: 8.847 ms
Inference average time: 7.945 ms
average lantency: 17.829 ms
FPS without overhead: 56.087
FPS with overhead: 55.783
root@ae6c21a0e53b:/workspace/lab4# _
```

```
root@ae6c21a0e53b:/workspace/lab4# python3 b2.py --model results/Resnet34_Ac
Accuracy: 0.871, (2914/ 3347)
Total execution time: 61 s
Overhead: 843 ms
Loading and preprocessing average time: 8.991 ms
Inference average time: 7.968 ms
average lantency: 17.985 ms
FPS without overhead: 55.602
FPS with overhead: 54.869
```