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Summary

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⇒ Trained a Pretrained ResNet101-32x8d On CIFAR-100 (224x224)

↓

Evaluated on full 60K.

↓

Selected lowest-confidence images.
37.5% of total images

↓

retrained the saved best model on the selected subset & find improved accuracy.

= ① [Dataset] : CIFAR-100

train = 50,000

test = 10,000

=> for the first training → train = 45K, Val = 5K, test = 10K

resnet50, resnet18, resnext101-32x8d.

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② Preprocessing & Augmentation

=> Input resolution for pretrained model : 224×224

↑

resize CIFAR

=> Normalization : ImageNet mean/std

⇑

because we finetuned

ImageNet weights

=> Training augmentations:

→ RandomResizedCrop (224)

+

RandomHorizontalFlip

→ RandAugment

=> Inference Transforms: deterministic

Resize(224) +

normalization

③ Model & training

model : ResNet X101-32x8d (via timm).

ImageNet-pretrained.

Epoch = 120

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⑦ Result after first training run

Val loss = 0.8078
Val top1 = 86.84
Top5 = 86.84

Validation
- loss : 0.5854
- Top1 : 86.840
- Top5 : 97.180

=> On combined dataset (60,000 images)
test + train

Final loss = 0.7919
Accuracy Top1 = 82.200
Top5 = 95.200

⑧ Full data inference & selection.

Concate images train + val + test ≈ 60,000

=> Sorting based on lowest confidence score.

37.5% = 22,500 images.

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⑥ Mode 2 training

⇒ Retrained the model starting from the previously saved best-checkpoint weights (load weights only) → creates new optimizer and LR schedule, and train from epoch 0 on the selected subset.

Alternative approach.

Optionally retrain resume training preserving optimizer + scaler + epoch by loading optimizer state from the checkpoint

⑦ Final Evaluation After Retraining

On 60,000 images: loss = 1.117

Accuracy Top1 = 97.750

Top5 = 99.785