Guess The Age Contest: BTWG

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1 Introduction

We choose RegNet Radosavovic, Kosaraju, Girshick, He, and Dollár (2020), a family of ResNets, as the backbone. Considering the network's size, we choose the RegNetY-4GF, which has a similar flop to ResNet50 and shows some performance improvement to ResNet50.

2 Description of the method

2.1 Convolutional neural network

The RegNetY-4GF, which is pre-trained on ImageNet, is employed as the backbone. The last 2048-class fully connected layer is replaced with the K-class FC layer, where K is set to 101.

2.2 Training procedure

Dataset We randomly divide MIVIA into a training set and a validation set at a ratio of 4:1. And mean absolute error (MAE) is used as the metric to evaluate the performance. MAE is obtained by averaging the error over the test data.

$$MAE = \sum_{i=1}^{M} \frac{|y_i - \hat{y_i}|}{M} \tag{1}$$

where M is the total number of test images, and the $y, \hat{y}$ denote the age and the predicted age.

Face pre-processing The input of the network is constituted by facial images with a resolution of 224 × 224 pixels. The images are aligned with five landmarks (including two eyes, nose tip and two mouth corners) according to the work Zhang, Zhang, Li, and Qiao (2016).

Data augmentation We use RandAugment Cubuk, Zoph, Shlens, and Le (2020) data augmentation as an additional regularizer, where we set the M=9 and N=2.

Training procedure

    loss function The loss function is same as DLDL-v2 Gao, Zhou, Wu, and Geng (2018).

    optimizer The optimizer is done by stochastic gradient descent.

```
torch.optim.SGD(model.parameters(), lr, momentum=0.9, weight_decay=4e-5, nesterov=True)
```

    schedule The schedule is done by MultiStepLR and CosineAnnealingWarmRestarts.

```
torch.optim.lr_scheduler.MultiStepLR(optimizer, [10,18,22], gamma=0.1)
torch.optim.lr_scheduler.CosineAnnealingWarmRestarts(optimizer, T_0=5, T_mult=2, eta_min=0)
```

Training from scratch or fine tuning The RegNetY-4GF is pre-trained on MS-celeb-1M and last training/fine tuning on the MIVIA.

Pre-training: Initial LR=0.1; Scheduler=MultiStepLR; Epoch=24.

Training: Initial LR=0.01; Scheduler=CosineAnnealingWarmRestarts; Epoch=35. On MIVIA training set.

Fine-tuning: Initial LR=0.01; Scheduler=CosineAnnealingWarmRestarts; Epoch=35. On MIVIA training set and validation set for submission.

3   Experimental

At the test time, we feed the test image and its flipped copy into the network and average their predictions as the final age estimation. The result of MAE on the validation set is 1.758(without Fine-tuning).

References

Cubuk, E. D., Zoph, B., Shlens, J., & Le, Q. V. (2020). Randaugment: Practical automated data augmentation with a reduced search space. In *Cvprw.*

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