前言：

- 碍于个人的笔电显卡性能有限
  - 难以实现原实验中300epoch + 64BatchSize的参数条件
  - 运行速度不足以执行完论文中的实验
  - （我办法也不多，多少给点分就行qaq）
- 设计了一个简单的实验，通过对比开启关闭MoEx的训练结果，来验证MoEx抽象方法的有效性
- 同时在多种数据集上实验，证明MoEx抽象方法的普适性

参数设定：

- Epoch：5
- Batch_Size：10
- λ = 0.9

CIFAR100:关闭MoEx（moex_prob=0）

```
Test (on val set): [4/5][980/1000]  Time 0.055 (0.060)  Loss 1.5781 (2.2031)    Top 1-err 40.0000 (57.8491) Top 5-err 20.0000 (26.3405)
* Epoch: [4/5]   Top 1-err 57.900  Top 5-err 26.460  Test Loss 2.208
```

CIFAR100:每组数据50%概率发生MoEx (moex_prob=0.5):

```
Test (on val set): [4/5][980/1000]  Time 0.056 (0.060)  Loss 2.7747 (2.1107)    Top 1-err 80.0000 (56.1672) Top 5-err 30.0000 (24.6993)
* Epoch: [4/5]   Top 1-err 56.250  Top 5-err 24.740  Test Loss 2.111
```

CIFAR10:关闭MoEx：

```
Test (on val set): [4/5][960/1000]  Time 0.056 (0.061)  Loss 0.6905 (0.5151)    Top 1-err 30.0000 (17.8980) Top 5-err 0.0000 (0.8845)
Test (on val set): [4/5][980/1000]  Time 0.057 (0.061)  Loss 0.3346 (0.5147)    Top 1-err 10.0000 (17.8491) Top 5-err 0.0000 (0.8665)
* Epoch: [4/5]   Top 1-err 17.770  Top 5-err 0.860   Test Loss 0.512
Current best accuracy (top-1 and 5 error): 17.77 0.86
Best accuracy (top-1 and 5 error): 17.77 0.86
```

CIFAR10:每组数据50%概率发生MoEx (moex_prob=0.5):

```
Test (on val set): [4/5][960/1000]  Time 0.055 (0.059)  Loss 0.7234 (0.4934)    Top 1-err 30.0000 (16.5973) Top 5-err 0.0000 (0.7700)
Test (on val set): [4/5][980/1000]  Time 0.055 (0.059)  Loss 0.4353 (0.4932)    Top 1-err 10.0000 (16.5749) Top 5-err 0.0000 (0.7645)
* Epoch: [4/5]   Top 1-err 16.560  Top 5-err 0.760   Test Loss 0.493
Current best accuracy (top-1 and 5 error): 16.56 0.76
Best accuracy (top-1 and 5 error): 16.56 0.76
```

验证结论：

1. 对比训练结果的Top-err，发现使用MoEx之后，错误率有了一定的下降，证明MoEx增扩的图像对增加神经网络训练的鲁棒性有一定的效果。
2. 在CIFAR100与CIFAR10图像集上，MoEx方法均表现有效，证明MoEx增扩方法的普适性