Homework 3

Gheorghita Stefana

December 9, 2024

1 Results:

No	Experiment	Best Accuracy
1	Baseline Model*	27.43%
2	H3 (1)	67.6%
3	H3 (2)	66.19%
4	H3 (3)	30.9%
5	H3 (4)	45.36%
6	H3 (5)	33.24%
7	H3 (6)	50.28%
8	H3 (7)	35.89%
9	H3 (8)	48.47%
10	H3 (9)	70.55%

Table 1: Summary of experiments and their best accuracies.

1. Experiment 1: Configuration:

• Model: ResNet18 Cifar 10;

• Optimizer: SGD, Learning rate: 0.001;

• Scheduler: None;

• Augmentation: None

• Batch size: 64;

• Early stopping;

• Number of epochs: 50;

2. Experiment 2:

```
agent Starting Run: cbeckfr with config:

| Agent Starting Run: cbeckfr with config:
| Agent Starting Run: cbeckfr with config:
| Agent Run: Ag
```

Figure 1: Configuration



Figure 2: Result

Configuration:

- Model: ResNet18 pretrained (+ UmSampling);
- Optimizer: AdamW, Learning rate: 0.0005;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;
- Number of epochs: 100;

3. Experiment 3:

```
wandb: Agent Starting Run: vtipzyci with config:
wandb: alpha: 1
wandb: alpha: 1
wandb: alpha: 1
wandb: batch_size: 64
wandb: batch_size: 64
wandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandb: dataset: cIFAR100
wandb: dataset: cIFAR100
wandb: min_felta: 0.0001
wandb: min_felta: 0.0001
wandb: momentum: 0.9
wandb: momentum: 0.9
wandb: num_classes: 100
wandb: num_classes: 100
wandb: num_classes: 100
wandb: nim_classes: 100
wandb: patience: any_stopping: 5
wandb: patience: any_stopping: 5
wandb: patience: cosineannealinglr
wandb: scheduler: cosineannealinglr
wandb: t_max: 100
wandb: w
```

Figure 3: Configuration



Figure 4: Result

Configuration:

- Model: ResNet18 pretrained (+ UmSampling);
- Optimizer: AdamW, Learning rate: 0.001;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;
- Number of epochs: 100;

4. Experiment 4:

```
wandb: Agent Starting Run: mzw6hhmf with config:
wandb: alpha: 1
wandb: alpha: 1
wandb: batch_size: 64
wandb: batch_size: 64
wandb: batch_size: 64
wandb: data_path: Kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandb: data_path: Kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandb: data_path: Kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandb: data_path: Kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandb: data_path: Leo.0001
wandb: model_name: resnet18
wandb: momentum: 0.9
wandb: nomentum: 0.9
wandb: config: ('learning_rate': 0.01, 'optimizer': 'sgd')
wandb: top_node: max
wandb: t. max: 100
wandb: t. warup: 7
wandb: use_mixup: True
wandb: warup: 5
wandb: weight_decay: 0.0005
```

Figure 5: Configuration



Figure 6: Result

- Model: ResNet18;
- \bullet Optimizer: SGD, Learning rate: 0.01;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandomRotation(10),
 - RandomResizedCrop(32, scale=(0.9, 1.1)),
 - RandomHorizontalFlip(),
 - RandomAffine(degrees=0, shear=10),
 - RandomCrop(32, padding=3),
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.4914, 0.4822, 0.4465), (0.247, 0.243, 0.261))
- Batch size: 64;
- Early stopping;

• Number of epochs: 100;

5. Experiment 5:

```
smidi: Agent Starting Run: bul7u8yb with config:
smidi: alphu: 1
smidi: but0_six: cased: combined_resize2
smidi: but0_six: (Agggle/input/fil-atm-2024-project-noisy-cifar-100/fil-atm-2024-project-noisy-cifar-100
smidi: but0_six: (Agggle/input/fil-atm-2024-project-noisy-cifar-100/fil-atm-2024-project-noisy-cifar-100
smidi: cased: cased: cased: cased: smidi: model: anex: resnet18
smidi: model.name: resnet18
smidi: model.name: nesnet18
smidi: prosneturu: 0.9
smidi: nesterov: True
smidi: num.clasees: 100
smidi: protrained: cased: 100
smidi: protrained: True
smidi: protrained: True
smidi: stop_mode: max
smidi: t_max: 100
smidi: t_max: 100
smidi: t_max: 100
smidi: t_max: 100
smidi: use_cutaix: True
smidi: use_cutaix: True
smidi: use_mixue: True
```

Figure 7: Configuration



Figure 8: Result

- Model: ResNet18;
- Optimizer: SGD, Learning rate: 0.01;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandomRotation(10),
 - RandomResizedCrop(32, scale=(0.9, 1.1)),
 - RandomHorizontalFlip(),
 - RandomAffine(degrees=0, shear=10),
 - RandomCrop(32, padding=3),
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.4914, 0.4822, 0.4465), (0.247, 0.243, 0.261))
- Batch size: 64;

- Early stopping;
- Number of epochs: 100;

6. Experiment 6:

```
wandi: Agent Starting Run: ch82020 with config:
wandi: alpha: 1
wandi: alpha: 1
wandi: batch size: 64
wandi: data path: / kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandi: dataset: CIFAK100
wandi: min delta: 0.0001
wandi: min delta: 0.0001
wandi: model_name: resnet50
wandi: model_name: resnet50
wandi: muncl: mun_classes: 100
wandi: num_classes: 100
wandi: primater_config: ('learning_rate': 0.01, 'optimizer': 'sgd')
wandi: primater_config: ('learning_rate': 0.01, 'optimizer': 'sgd')
wandi: pretrained: True
wandi: stop_mode: max
wandi: t_max: 100
wandi: t_max: 100
wandi: t_max: 100
wandi: t_max: 100
wandi: t_max: 17rue
wandi: vsc_cutmix: True
wandi: vsc_cutmix: True
wandi: varmup: 5
wandi: varmup: 5
wandi: warmup: 5
wandi: warmup: 5
wandi: warmup: 5
wandi: warmup: 5
```

Figure 9: Configuration



Figure 10: Result

- Model: ResNet50;
- Optimizer: SGD, Learning rate: 0.01;
- Augmentation:
 - CutMix
 - $-\ \mathrm{MixUp}$
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;

• Number of epochs: 100;

7. Experiment 7:

```
wondb: Agent Starting Run: q2qaxzej with config:
wondb: alpha: 1
wondb: augmentation_scheme: randaugment
wondb: batch_size: 64
wondb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wondb: data_set: CIFAtl00
wondb: data_set: Ie-05
wondb: min_delta: 0.0001
wondb: momentum: 0.9
wondb: momentum: 0.9
wondb: momentum: 0.9
wondb: num_classes: 100
wondb: num_classes: 100
wondb: num_classes: 100
wondb: patience = anl_stopping: 5
wondb: patience = anl_stopping: 5
wondb: prevalend: True
wondb: cipervalend: True
wondb: t_0: 10
wondb: t_0: 10
wondb: t_0: 10
wondb: t_max: 100
w
```

Figure 11: Configuration



Figure 12: Result

- Model: ResNet50;
- Optimizer: AdamW, Learning rate: 0.0005;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;
- Number of epochs: 100;

8. Experiment 8:

```
wandb: Agent Starting Run: he70n7gc with config:
wandb: alpha: 1
wandb: augmentation_scheme: randaugment
wandb: batch_size: 64
wandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
wandb: dataset: CIFAR100
wandb: cta_min: le-05
wandb: min_delta: 0.0001
wandb: model_name: resnet18
wandb: momentum: 0.9
wandb: num_classes: 100
wandb: num_classes: 100
wandb: optimizer_config: {'learning_rate': 0.01, 'optimizer': 'sgd'}
wandb: patience: any_stopping: 5
wandb: patience: any_stopping: 5
wandb: scheduler: cosineannealinglr
wandb: scheduler: cosineannealinglr
wandb: t0: 10
wandb: t_mit: 2
wandb: use_mixup: True
```

Figure 13: Configuration



Figure 14: Result

- Model: ResNet18;
- Optimizer: SGD, Learning rate: 0.01;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;
- Number of epochs: 100;

9. Experiment 9:

```
mandb: Agent Starting Run: 00y55a0p with config:
mandb: alpha: 1
mandb: alpha: 1
mandb: batch_size: 64
mandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100/mandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100/mandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/mandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100/mandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100/mandb: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100/mandb: mandb: model_name: resnet18
mandb: model_name: resnet18
mandb: num_classes: 100
mandb: patience: and patience: deformandb: data_path: /mandb: scheduler: cosineannealinglr
mandb: scheduler: cosineannealinglr
mandb: scheduler: cosineannealinglr
mandb: t_name: noise max
mandb: t_name: noise max
mandb: t_name: noise max
mandb: use_utnix: True
mandb: use_utnix: True
mandb: use_utnix: True
mandb: use_mixup: True
mandb: weight_decay: 0.0005
mandb: t_name: noise max
mandb: weight_decay: 0.0005
mandb: t_name: noise max
mandb: weight_decay: 0.0005
mandb: t_name: noise max
mandb: use_mixup: True
mandb: use_mixup: True
mandb: use_mixup: True
mandb: weight_decay: 0.0005
mandb: recreatingle...
mandb: weight_decay: 0.0005
mandb: recreatingle...
mandb: use_mixup: True
mandb: weight_decay: 0.0005
mandb: recreatingle...
mandb: use_mixup: True
mandb:
```

Figure 15: Configuration



Figure 16: Result

- Model: ResNet18;
- \bullet Optimizer: AdamW, Learning rate: 0.0005;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;
- Number of epochs: 100;

10. Experiment 10:

```
Manuli: Agent Starting Run: do3lfrbo with config:
Manuli: alpha: 1
Manuli: alpha: 1
Manuli: alpha: 1
Manuli: data_path: /kaggle/input/fii-atnn-2024-project-noisy-cifar-100/fii-atnn-2024-project-noisy-cifar-100
Manuli: data_set: CIFAR100
Manuli: eta_min: 1e-05
Manuli: min_delta: 0.0001
Manuli: momentum: 0.9
Manuli: momentum: 0.9
Manuli: num_classes: 100
Manuli: num_classes: 100
Manuli: patience: 3
Manuli: patience: 3
Manuli: patience early_stopping: 5
Manuli: patience early_stopping: 5
Manuli: patience = max
Manuli: stop_mode: max
Manuli: to: 100
Manuli: to: 100
Manuli: to: 100
Manuli: to: 100
Manuli: patience = max
Manuli: patience = max
Manuli: to: 100
Manuli:
```

Figure 17: Configuration



Figure 18: Result

- Model: ResNet50 pretrained (+ UmSampling);
- Optimizer: AdamW, Learning rate: 0.001;
- Scheduler: CosineAnnealingLR, t_max= 100, eta_min=1e-5;
- Augmentation:
 - CutMix
 - MixUp
 - RandAugment()
 - ToImage(),
 - ToDtype(torch.float32, scale=True),
 - Normalize((0.5,), (0.5,))
- Batch size: 64;
- Early stopping;
- Number of epochs: 100;

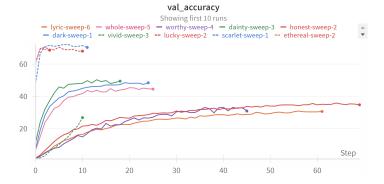


Figure 19: Val Accuracy

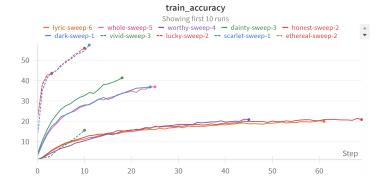


Figure 20: Train Accuracy

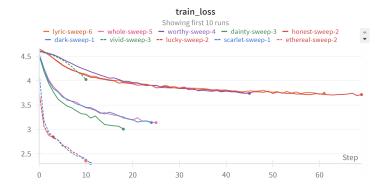


Figure 21: train Loss

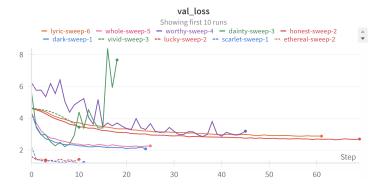


Figure 22: Val Loss