Machine Learning Kaggle Competition

Cifar-10 Image Classification
Team03

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CONTENTS

Part. 1

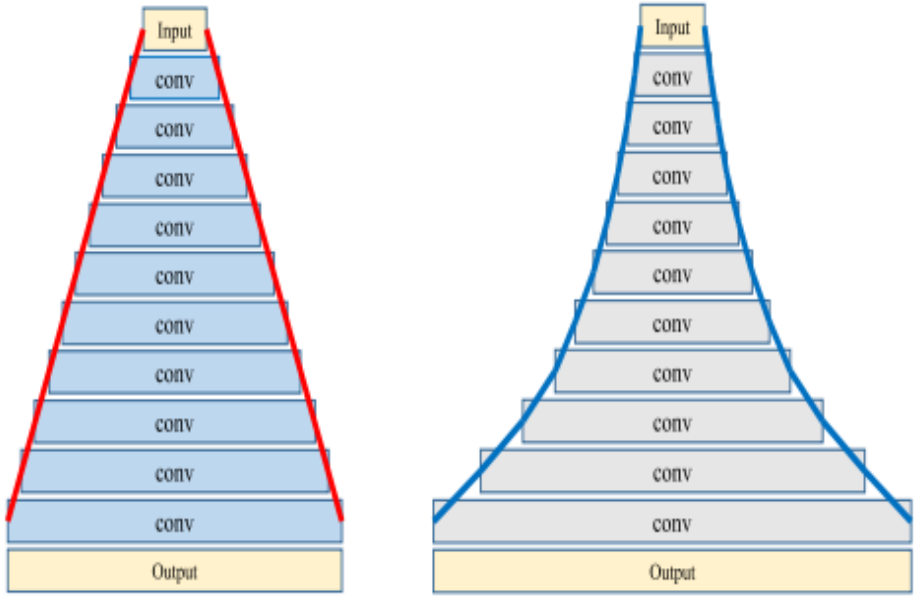
Model

1. Model

Cifar10 Classification

각 모델 별 성능 비교표

Model	# Params	Acc.
ResNet34	1.98M	70.22%
DenseNet	1.98M	86.46%
Preact-Resnet	1.85M	86.92%
EfficientNetB0	1.92M	87.15%
PyramidNet	1.87M	88.02%



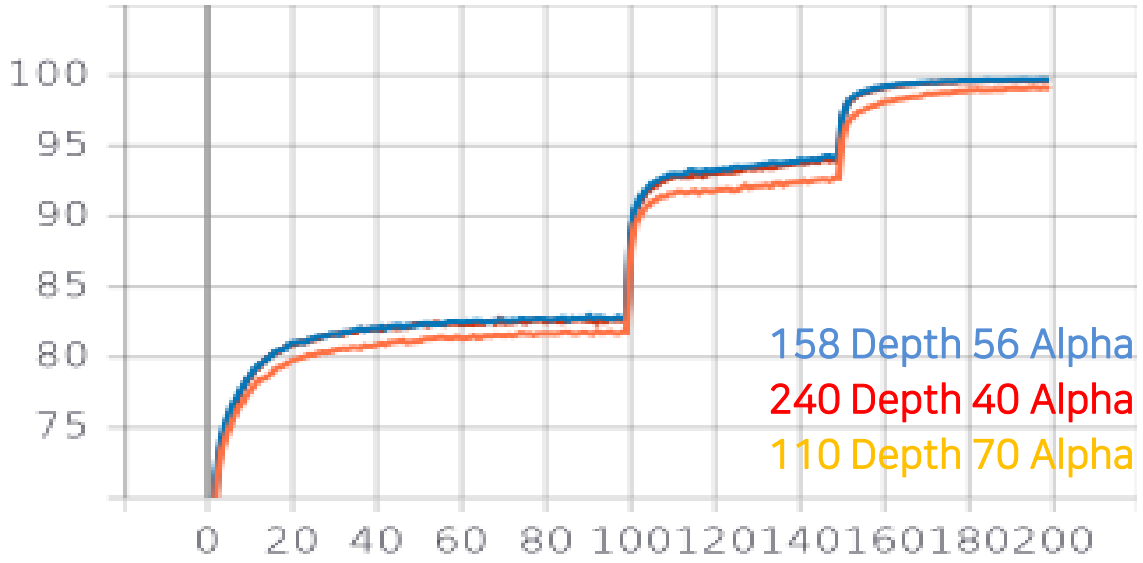
Pyramid-Net 모델 구조

1. Model

Cifar10 Classification

Hyper Parameter Depth, Alpha에 따른 성능 비교 그래프

Train set에 대한 Acc



Model	# Params	Acc.
PyramidNet(240-40)	1.97M	91.106%
PyramidNet(158-56)	1.98M	90.906%
PyramidNet(110-70)	1.92M	90.326%

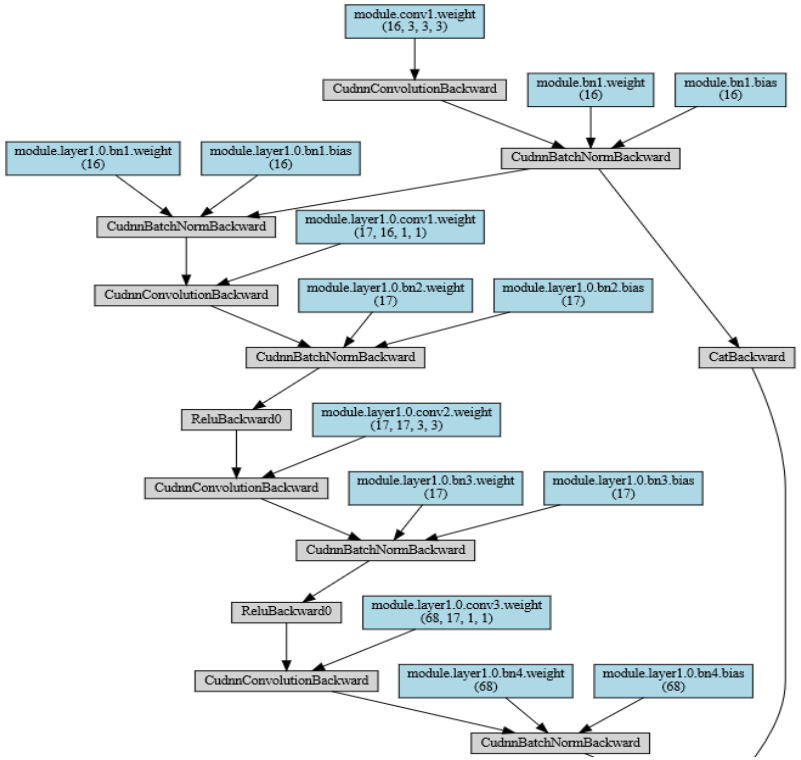
Test set에 대한 Acc

Hyper Parameter Depth, Alpha에 따른 성능 비교표

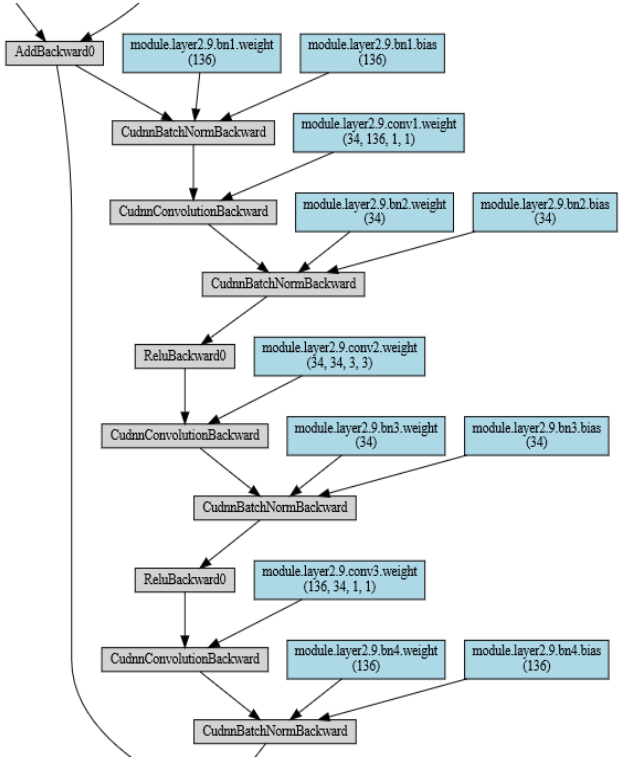
1. Model

Cifar10 Classification

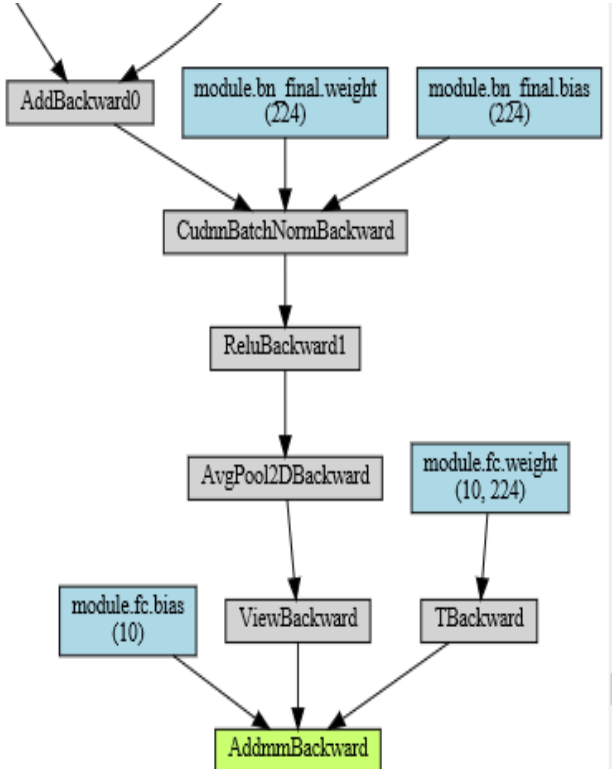
Depth: 240 Alpha: 40 Pyramid-Net 구조



Input Layer



Middle Layer



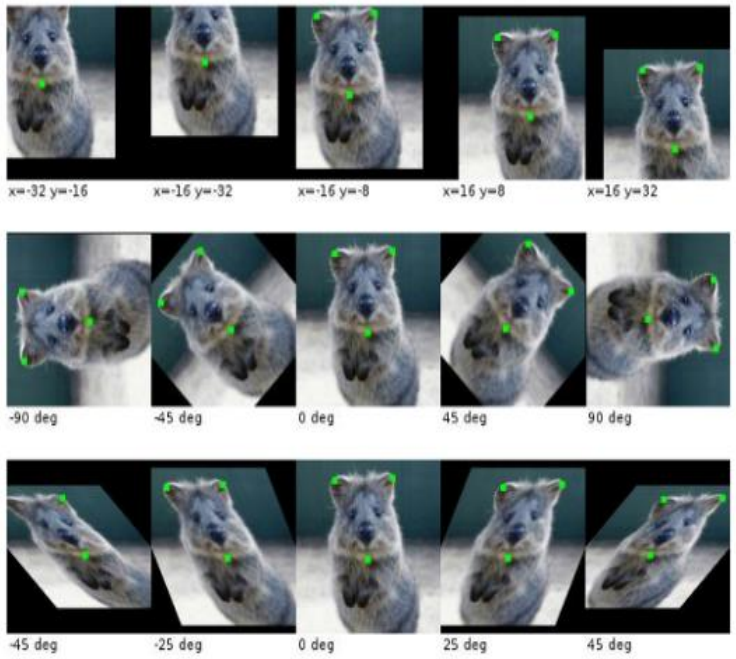
Output Layer

Part. 2

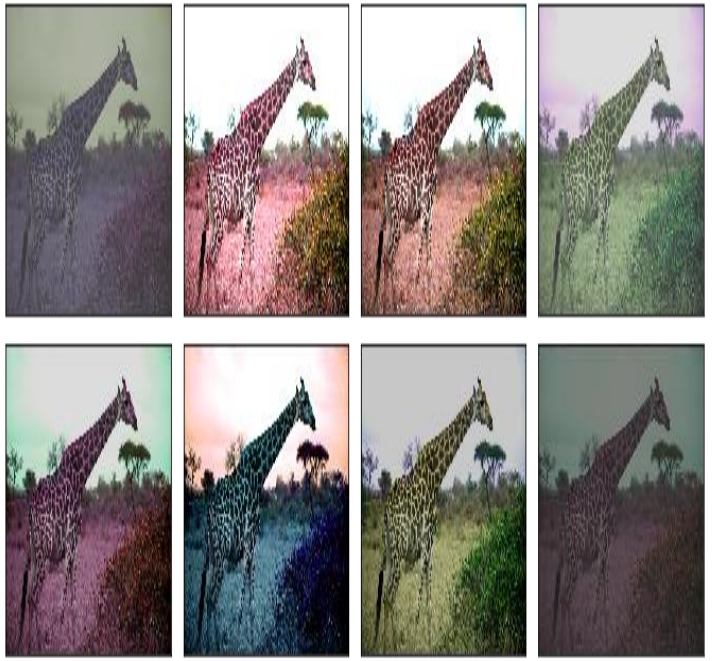
Data Augmentation

2. Data Augmentation

Cifar10 Classification



Affine Translation



Color Jittering

Fliping

2. Data Augmentation

Cifar10 Classification

Cut out

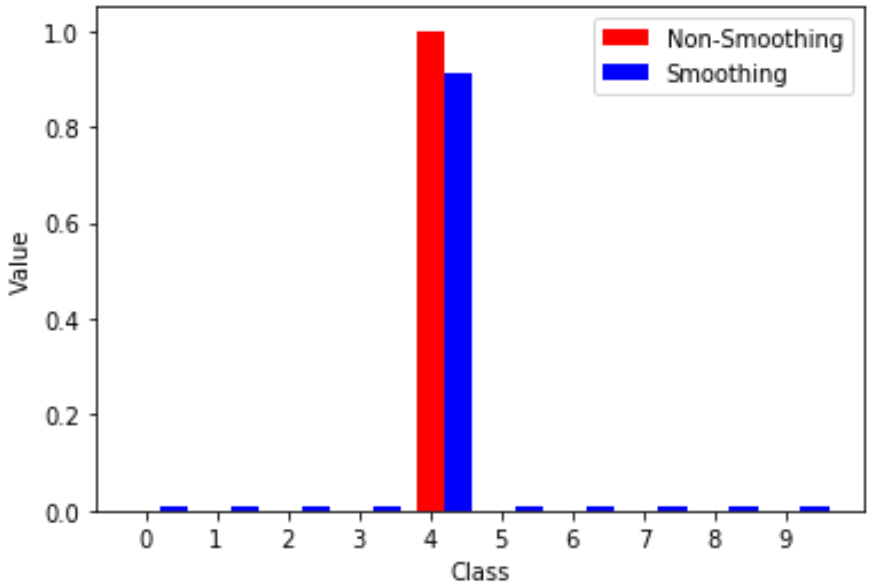
Cut Mix

Part. 3

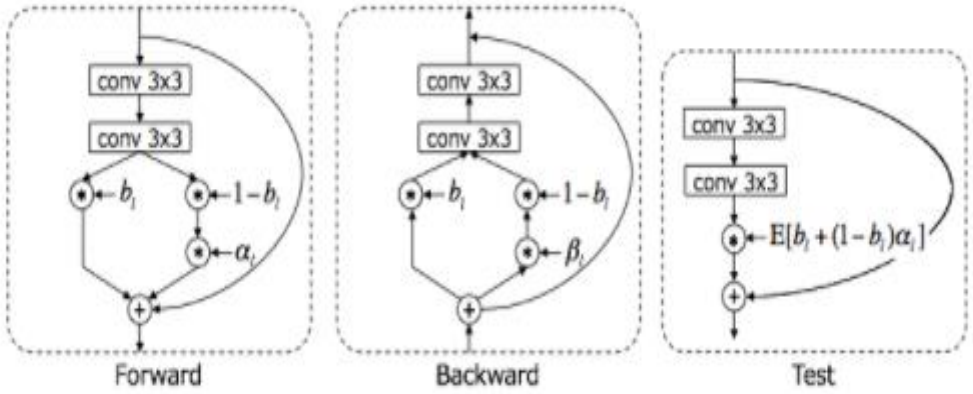
Regularization

3. Regularization

Cifar10 Classification



Label Smoothing



Shake Drop

Part. 4

Experiment

4. Experiment

Cifar10 Classification

Batch Size : 256

Scheduler : MultiStepLR [60,120,180]

Optimizer : SGD

Model : Pyramid-Net

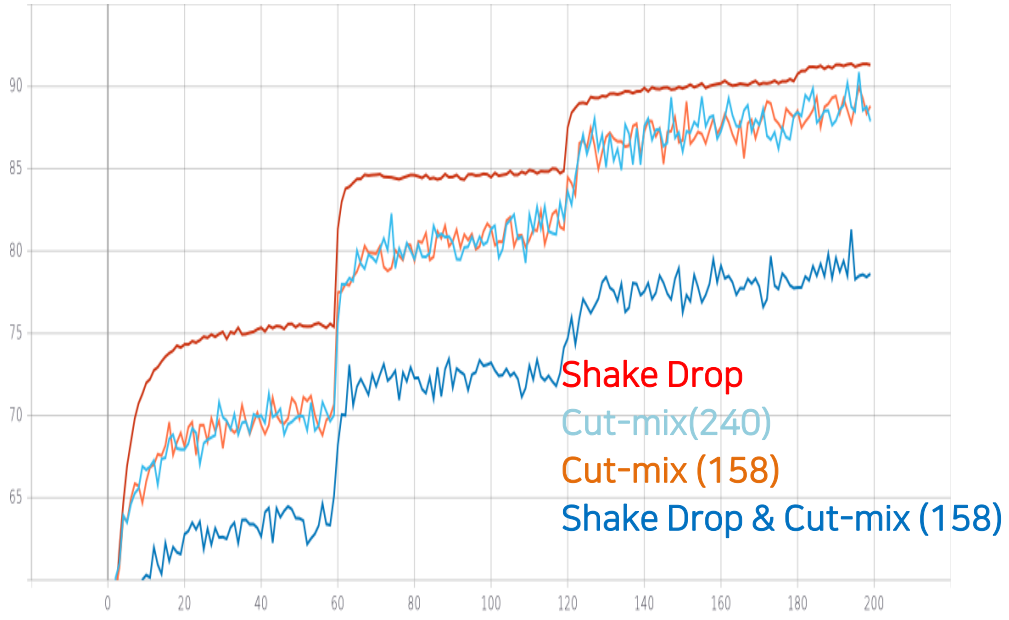
Weight Decay : 5e-4

4. Experiment

Cifar10 Classification

Augmentation & Regularization 기법에 따른 성능 그래프

Train set에 대한 Acc



Model	# Params	Regularization	Augmentation	Acc.
PyramidNet(158-56)	1.98M	Shake-Drop	-	89.939%
PyramidNet(158-56)	1.98M	-	Cut-mix	90.214%
PyramidNet(158-56)	1.98M	Shake-Drop	Cut-mix	89.776%
PyramidNet(240-40)	1.97M	-	Cut-mix	92.315%

Test set에 대한 Acc

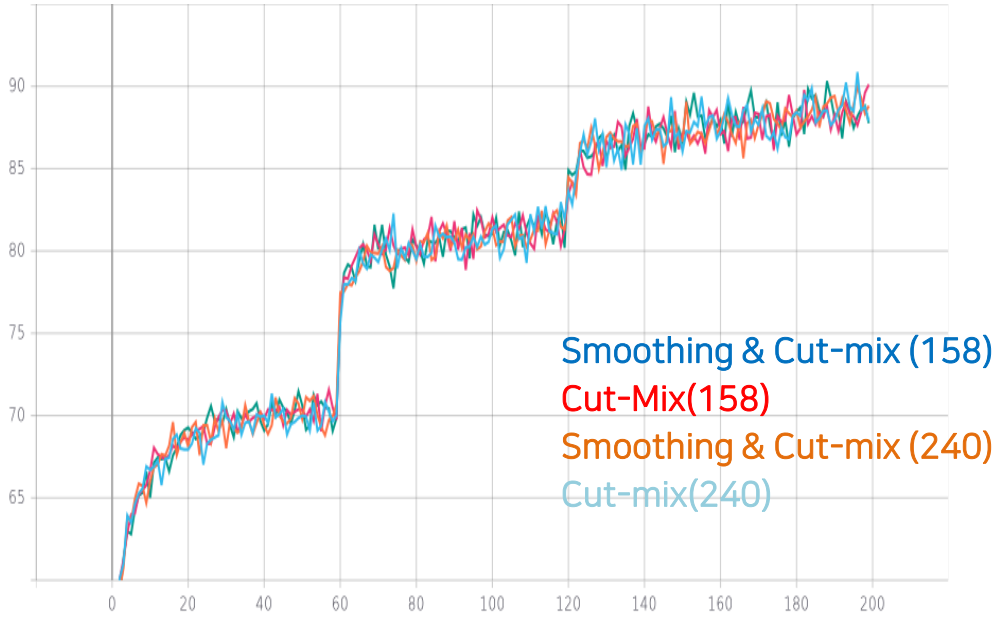
Augmentation & Regularization 기법에 따른 성능 표

4. Experiment

Cifar10 Classification

Augmentation & Regularization 기법에 따른 성능 그래프

Train set에 대한 Acc



Model	# Params	Regularization1	Regularization2	Acc.
PyramidNet(158-56)	1.98M	Cut-mix	Label Smoothing	92.214%
PyramidNet(158-56)	1.98M	Cut-mix	-	92.125%
PyramidNet(240-40)	1.97M	Cut-mix	Label Smooting	92.326%
PyramidNet(240-40)	1.97M	Cut-mix	-	92.315%

Test set에 대한 Acc

Augmentation & Regularization 기법에 따른 성능 표