ICCV 2021 Workshop

InAugment: Improving Classifiers via Internal Augmentation

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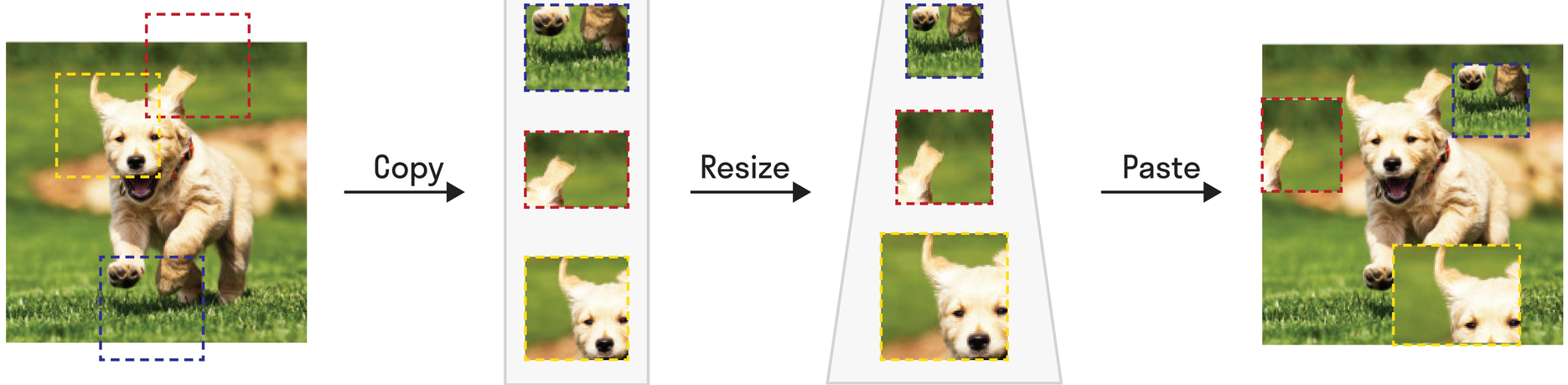
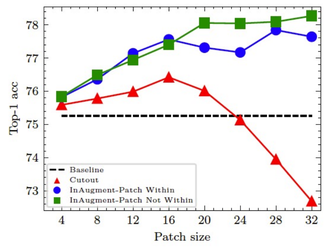


A Special Case of CutOut?



Using large patches in

CutOut: RED

hurts model genarlization

InAugment: Green Blue

improves model genarlization

Bigger Models Enjoy More Patches

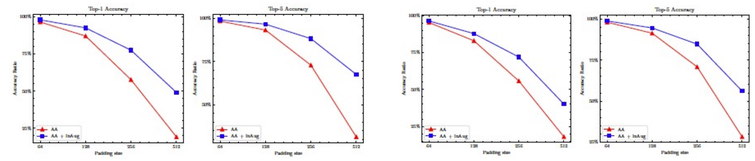
	AA	InAug x1	InAug x2	InAug x3
PreActResNet	79.11 / 0.95	**80.27** / 0.82	80.19 / **0.79**	79.70 / 0.80
WideResNet-28-10	83.84 / 0.59	**84.80** / **0.54**	84.46 / **0.54**	84.27 / 0.55
ShakeShake-96	85.90 / 0.55	86.65 / 0.52	**86.89** / **0.50**	86.65 / **0.50**

CIFAR & ImageNet Experiment

	Baseline	CutOut	AA	PBA	FAA	RA	AA+InAug
CIFAR10							
PreAct-ResNet-18	94.32 ± .18	95.67 ± .15	96.0 ± .05	-	-	-	**96.35 ± .08**
WideResNet-28-10	96.1	96.9	97.4	97.4	97.3	97.3	**97.45 ± .04**
ShakeShake26 2x96	97.1	97.4	98.0	98.0	98.0	98.0	**98.30 ± .05**
CIFAR100							
PreAct-ResNet-18	75.32 ± 0.11	76.48 ± 28	79.11 ± .11	-	-	-	**80.27 ± .31**
WideResNet-28-10	81.2	81.6	83.80 ± .17	83.3	82.7	83.3	**84.80 ± .20**
ShakeShake26 2x96	82.9	84.0	85.90 ± .11	84.7	85.4	-	**86.89 ± .20**

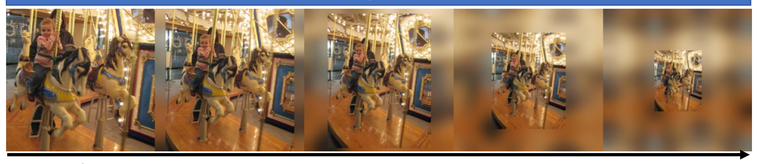
	Baseline	Fast AA	RA	AA	AA + InAug (Ours)
ResNet-50	76.3 / 93.1	77.6 / 93.7	77.6 / 93.8	77.6 / 93.8	**78.2** / **94.0**
EfficientNet-B3	81.1 / -	-	-	81.6 / -	**81.8** / 95.6

Improves On Out-of-distribution Object Scale



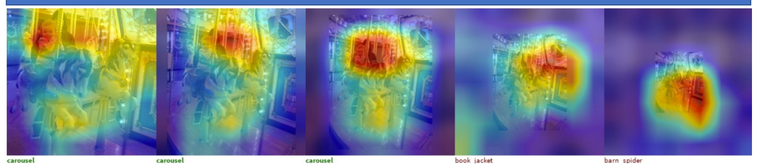
Symmetric Padding & Blur **Zero Padding**

Input:

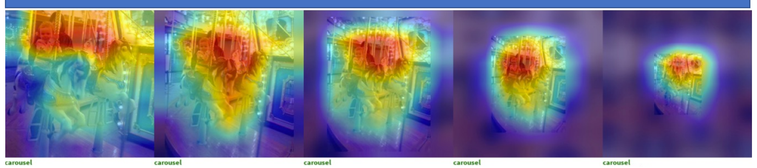


Original Size X0.125

Baseline:



Ours



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