

RepVGG: Making VGG-style ConvNets Great Again

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Abstract

[2] Andrew Zisserman Karen Simonyan. Very deep convolutional networks for large-scale image recognition, 2014. 0

1. Introduction

2. Related Work

The VGG architecture was introduced in [2]. One of its key findings was to prefer deep CNNs (16-19 weight layers) with small receptive fields induced by using small kernels over shallow CNNs with bigger receptive fields. Therefore a configuration of 3x3 kernels with stride 1 were used. This not only helps to strengthen the discriminative character of the network as the non-linear activation function (ReLU) is applied more often but also keeps the number of parameters to train lower. To increase the non-linearity without affecting the related receptive fields even 1x1 kernels were considered in more deeper architectures. Only by using simple convolutional, max-pooling and fully connected layers at the end of the network, VGG achieved a 24.4 top-1 validation error during ILSVRC-2014 (single net performance). [2]

Inception [1].

- structural re-parameterization technique - ResNet-50, - ResNet-101 - Inception - DenseNet - EfficientNet - RegNet - automatic, or manual architecture search - search compound scaling strategy

3. Approach

4. Experiments

5. Discussion

6. Conclusion

References

[1] Christian Szegedy, Wei Liu, Yangqing Jia, Pierre Sermanet, Scott Reed, Dragomir Anguelov, Dumitru Erhan, Vincent Vanhoucke, Andrew Rabinovich. Going deeper with convolutions, 2014. 0