Indoor Semantic Image Segmentation

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FINAL REPORT: https://github.com/imagesegmentation2020/indoor

Overview

Reduce complexity of the model : Deep Dilated Unet

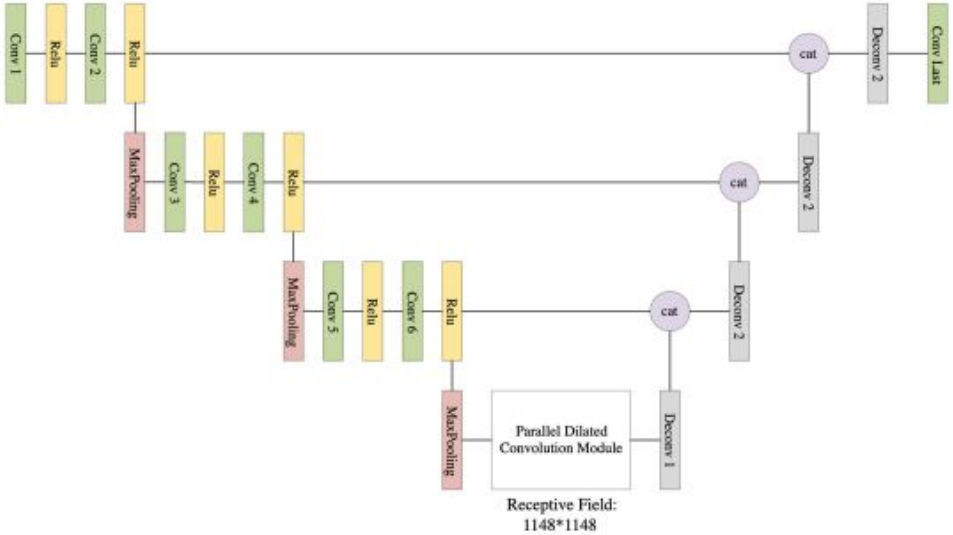


Fig. 2 Overall structure diagram of the Deep Dilated Unet

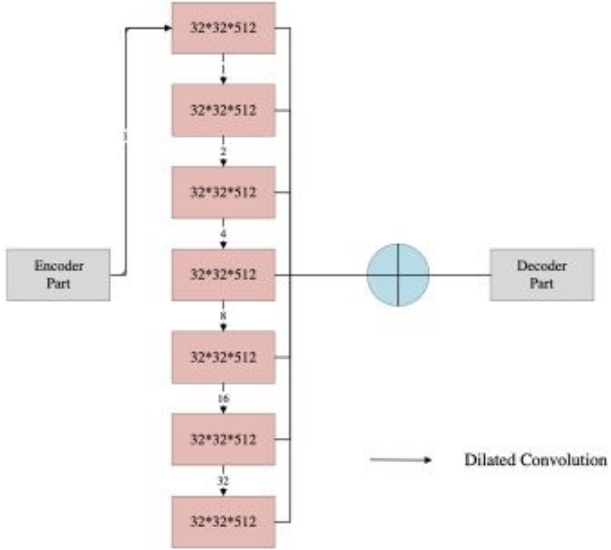


Fig. 1 Paralleled dilated convolution module structure

Shengyuan Piao and Jiaming Liu 2019 J. Phys.: Conf. Ser. 1345 052066 Accuracy Improvement of UNet Based on Dilated Convolution

Reduce complexity of the model : Dilated Convolutions recap

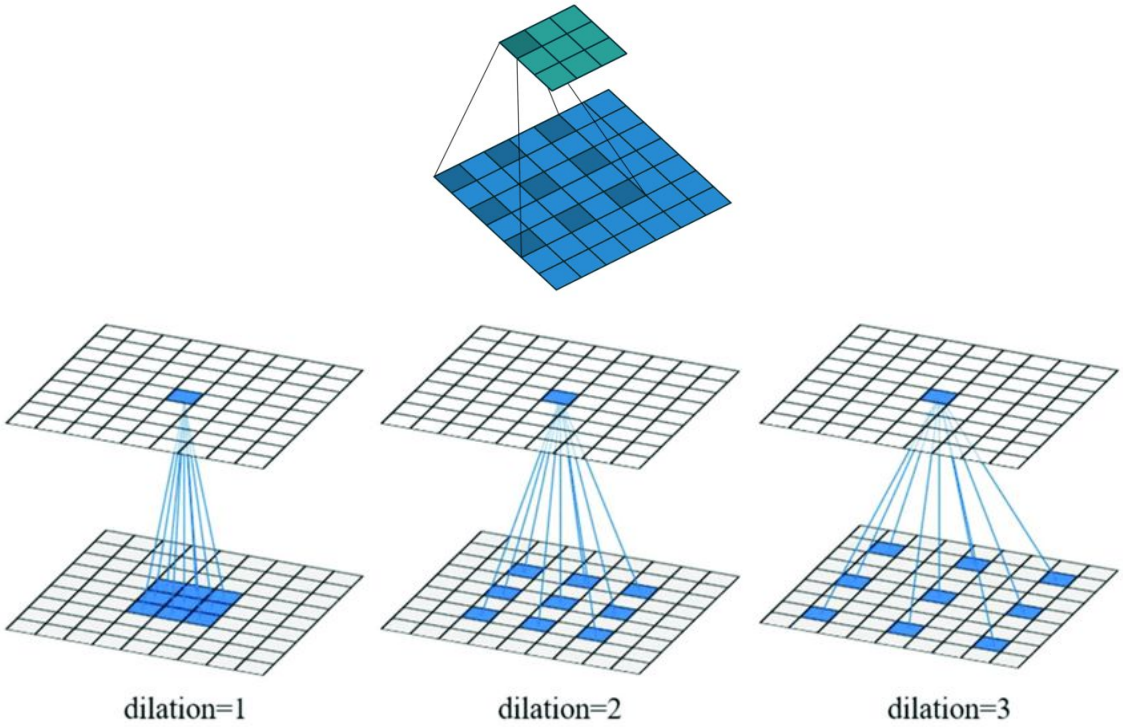
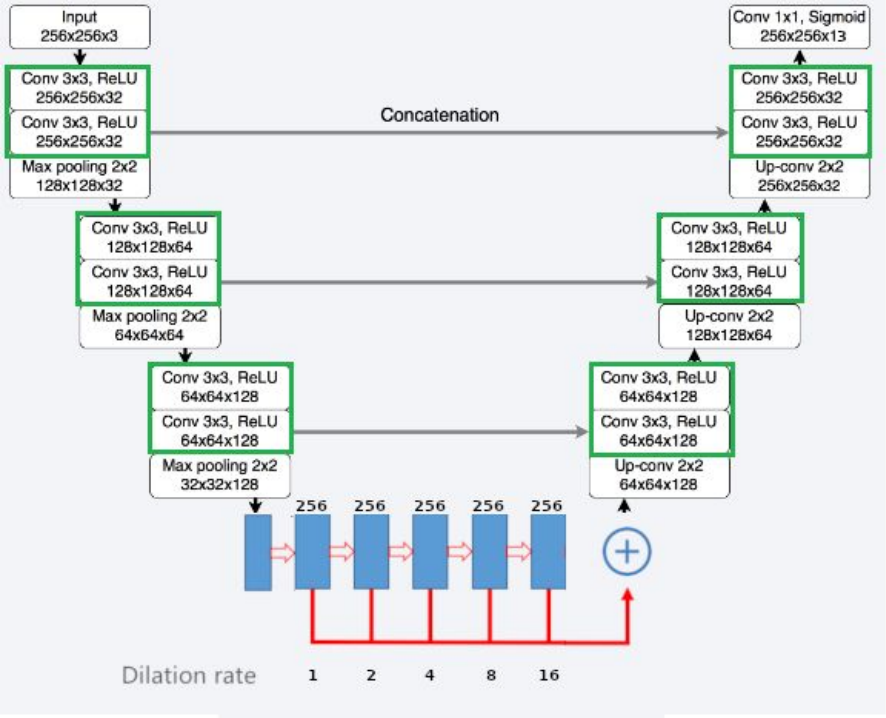


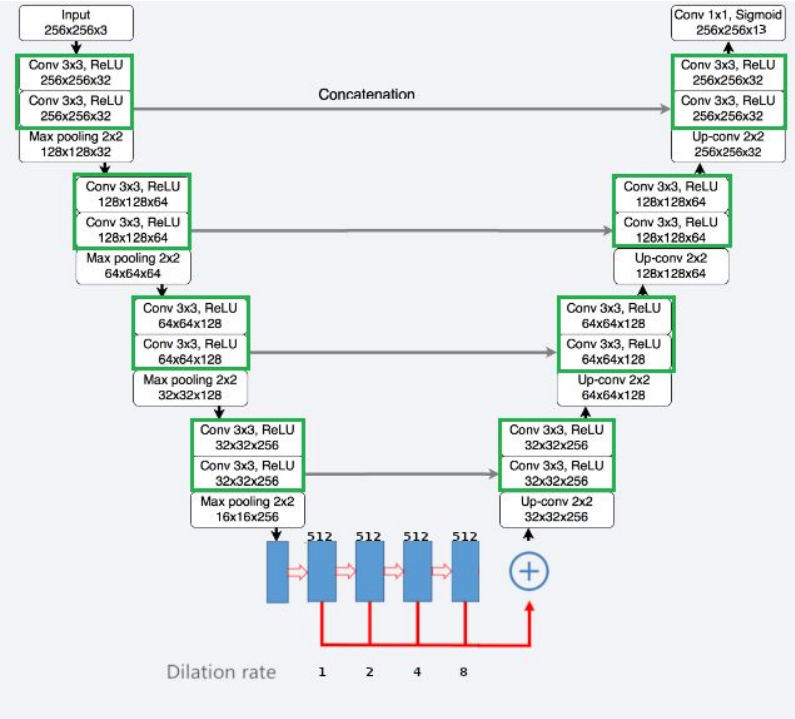
Image credit : https://www.researchgate.net/figure/An-illustration-of-the-receptive-field-for-one-dilated-convolution-with-different_fig1_336002670
Image credit : https://medium.com/@anandkummari113/efficient-residual-factorized-neural-network-for-semantic-segmentation-c128210323ba

Reduce complexity of the model : Deep Delated Unet. Dilation 1-16

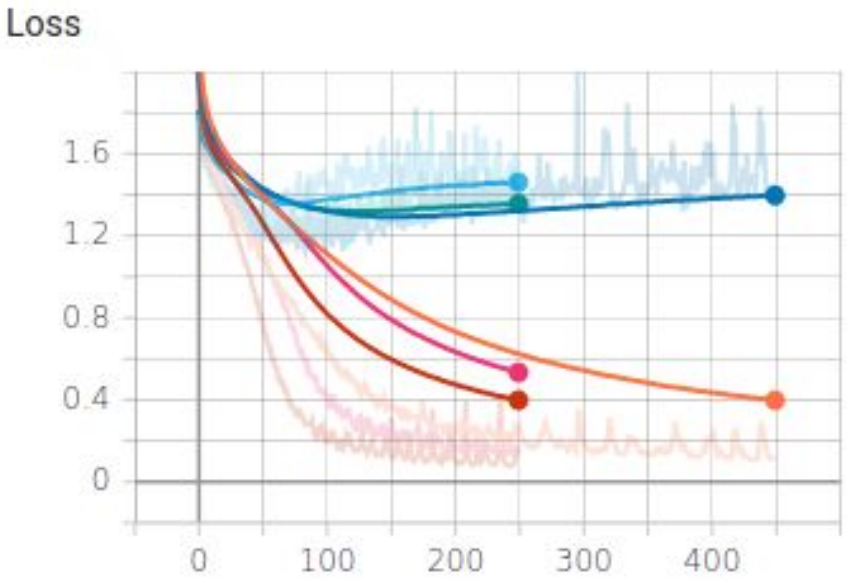


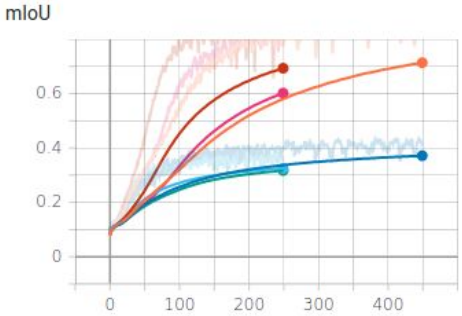
DEEPLABV3-RESNET101

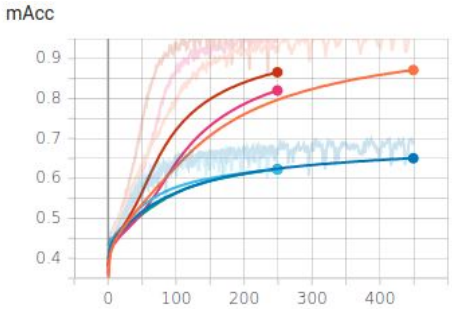
Reduce complexity of the model : Deep Delated Unet. Dilation 1-8



Reduce complexity of the model : Deep Delated Unet. Dilated 1-8-16







Deep Dilated Unet 1-16

Train
Validation

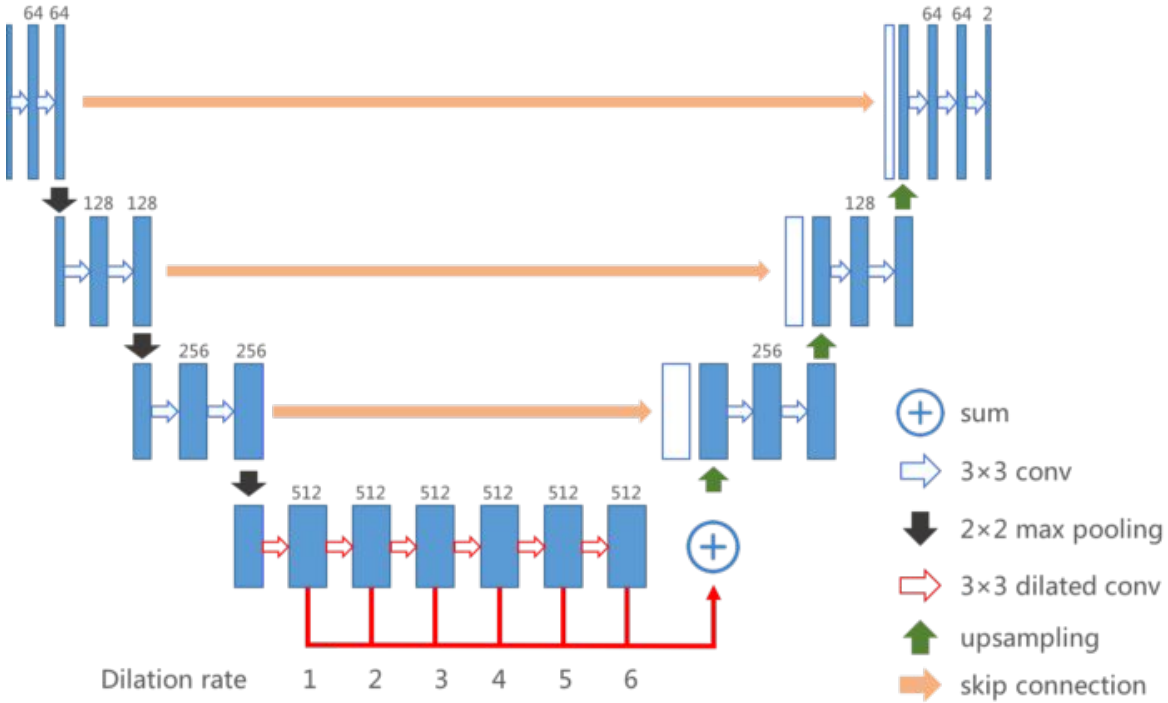
Deep Dilated Unet 1-8

Train
Validation

Unet

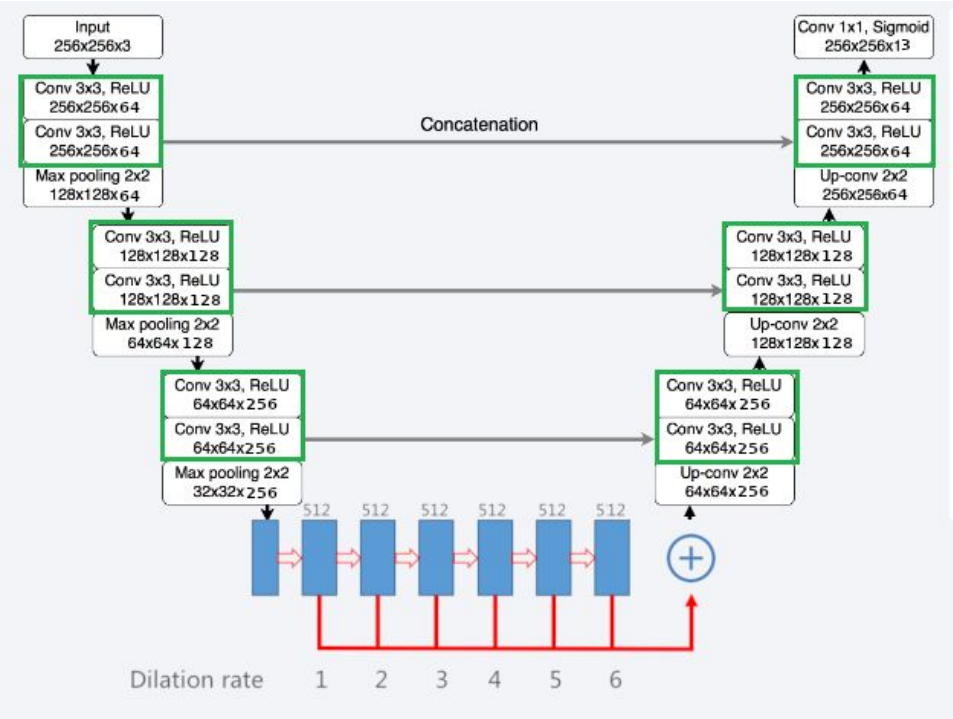
Train
Validation

Reduce complexity of the model : Deep Dilated Unet



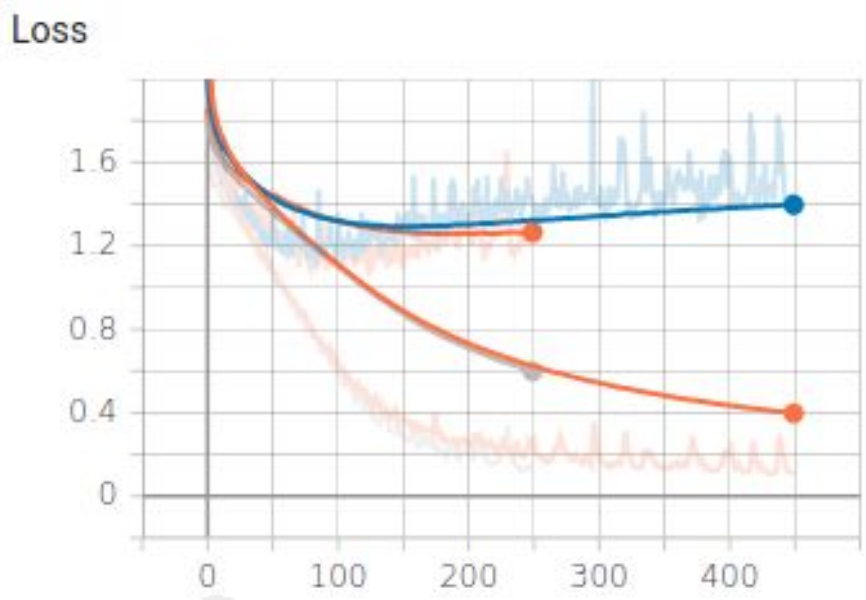
Source : Smart Audit: Using AI in International Trade

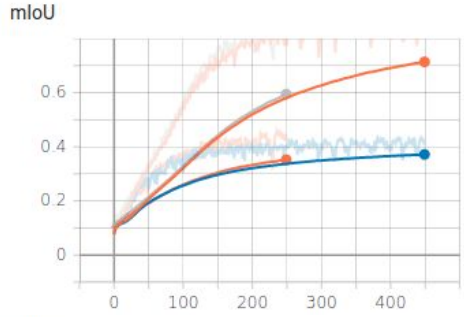
Reduce complexity of the model : Deep Delated Unet. Dilation 1..6

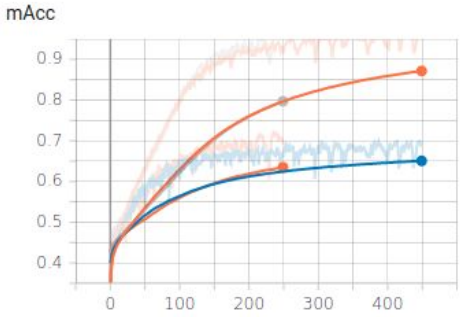


DEEPLABV3-RESNET101

Reduce complexity of the model : Deep Delated Unet. Dilation 1..6







Deep Dilated Unet 1..6

Train
Validation

Best epoch = 220

IoU = **45.70** %
Acc = **71.40** %

Unet

Train
Validation

Best epoch = 414

IoU = 43.56 %
Acc = 69.69 %