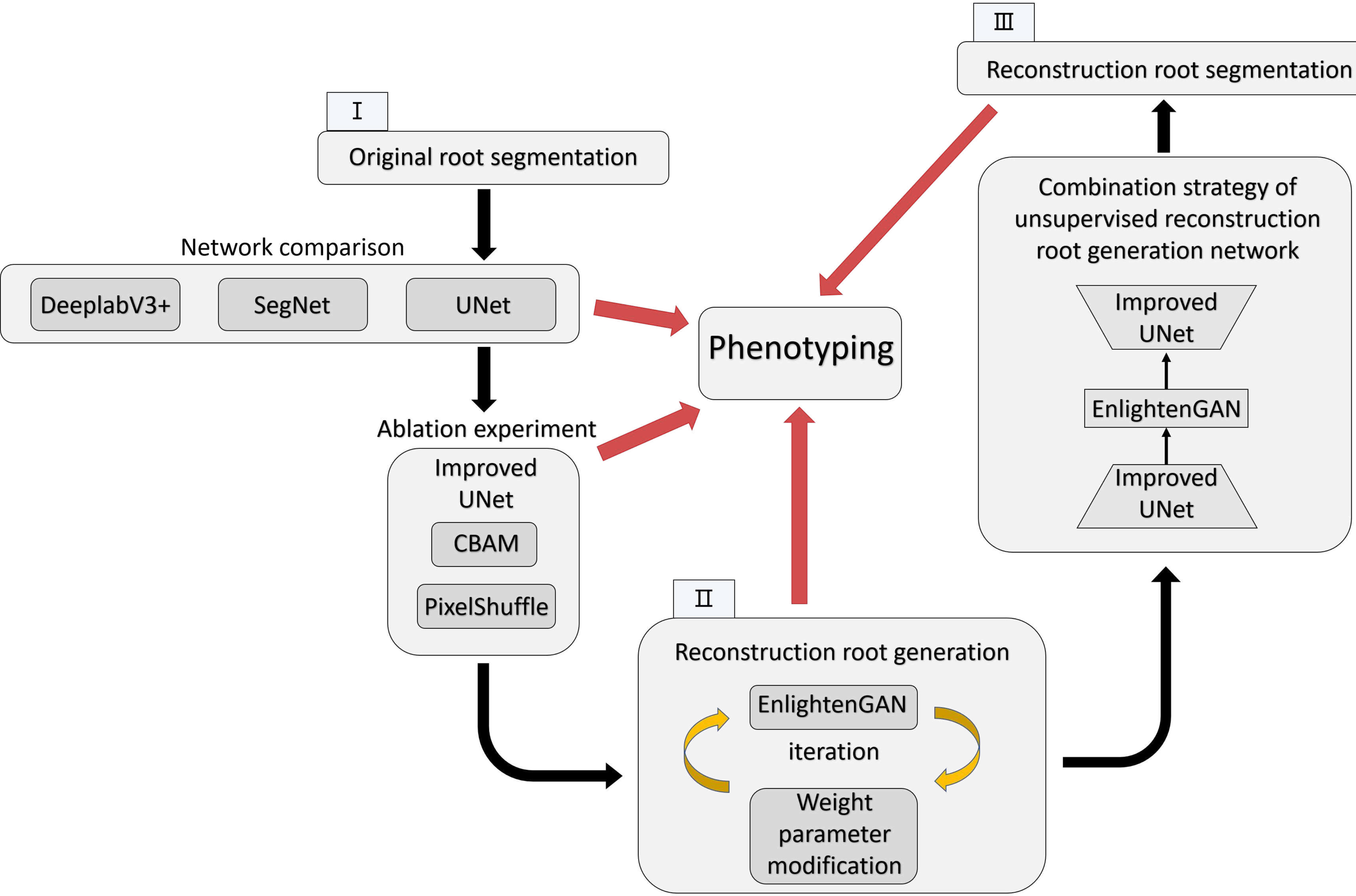
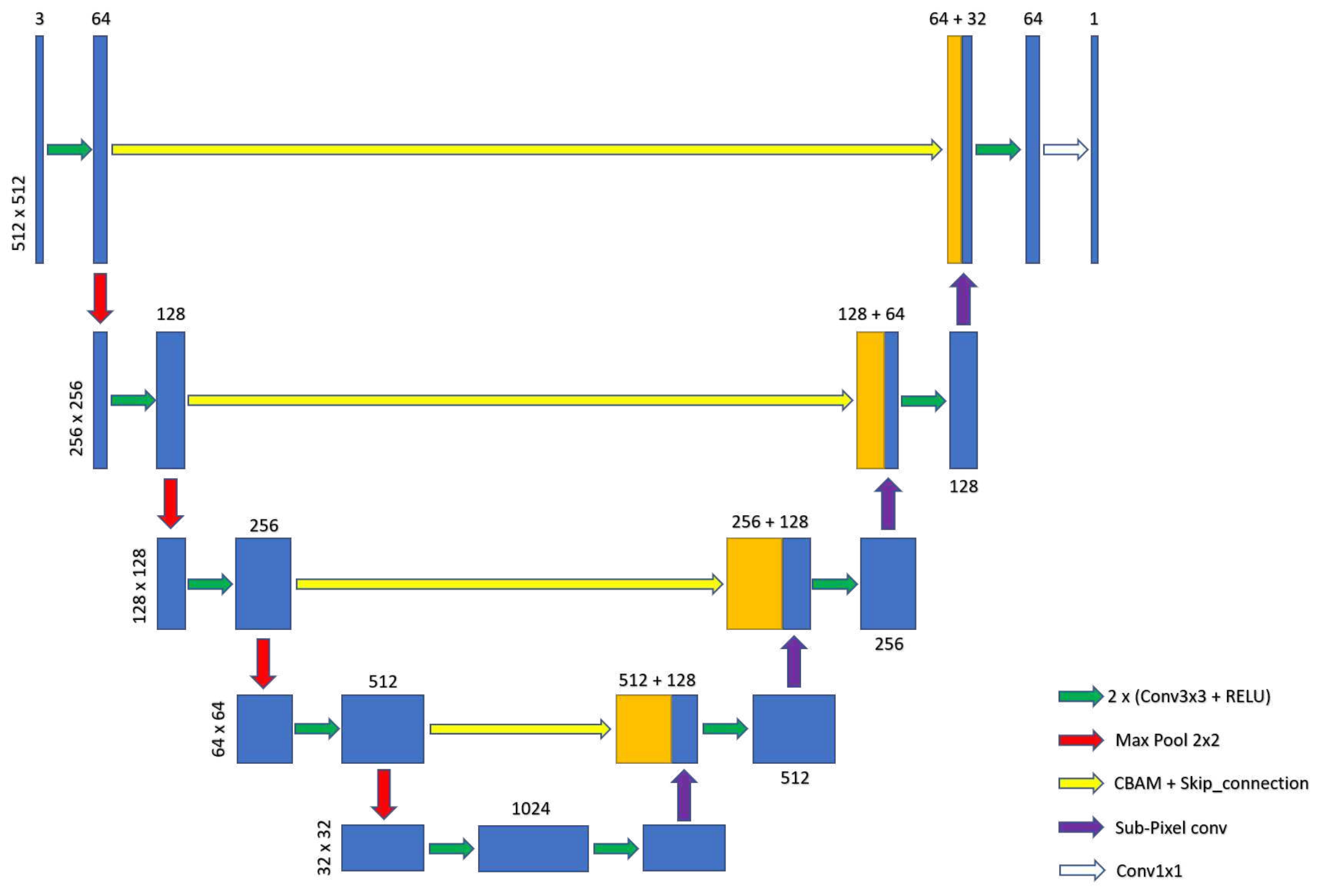
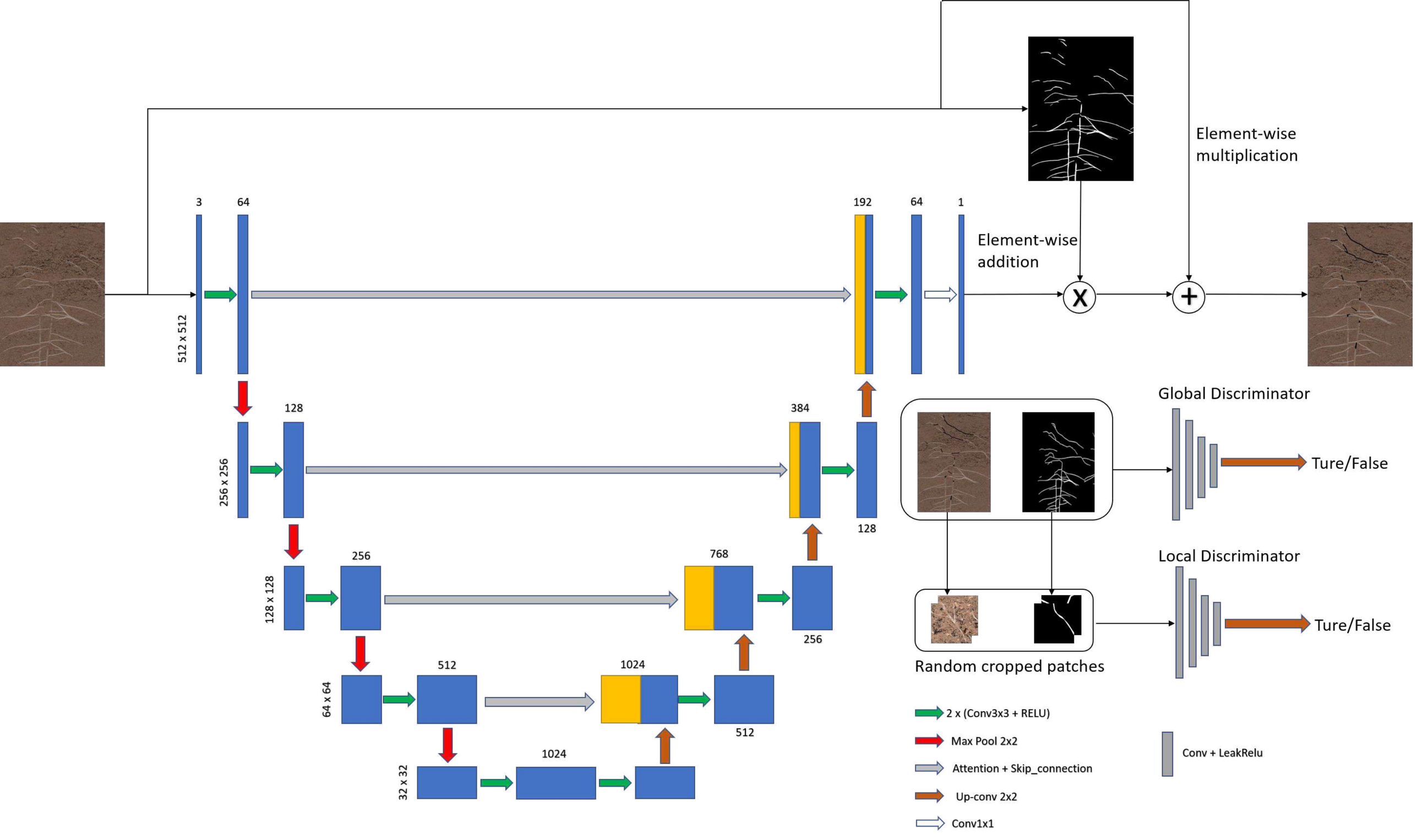
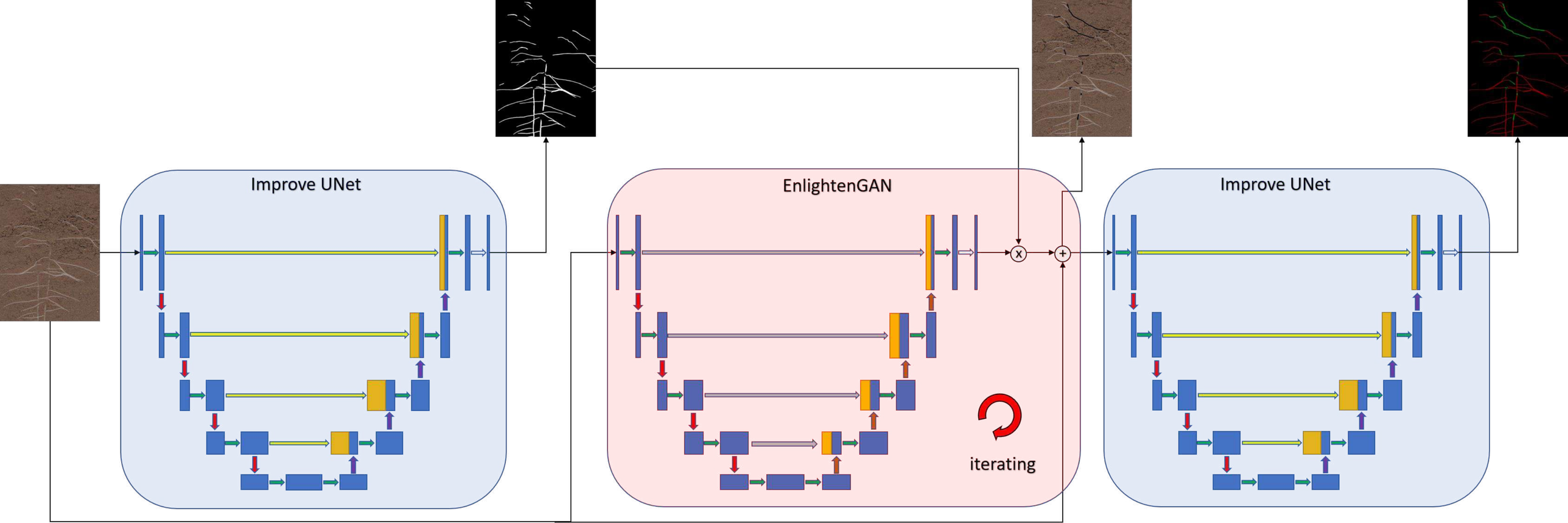
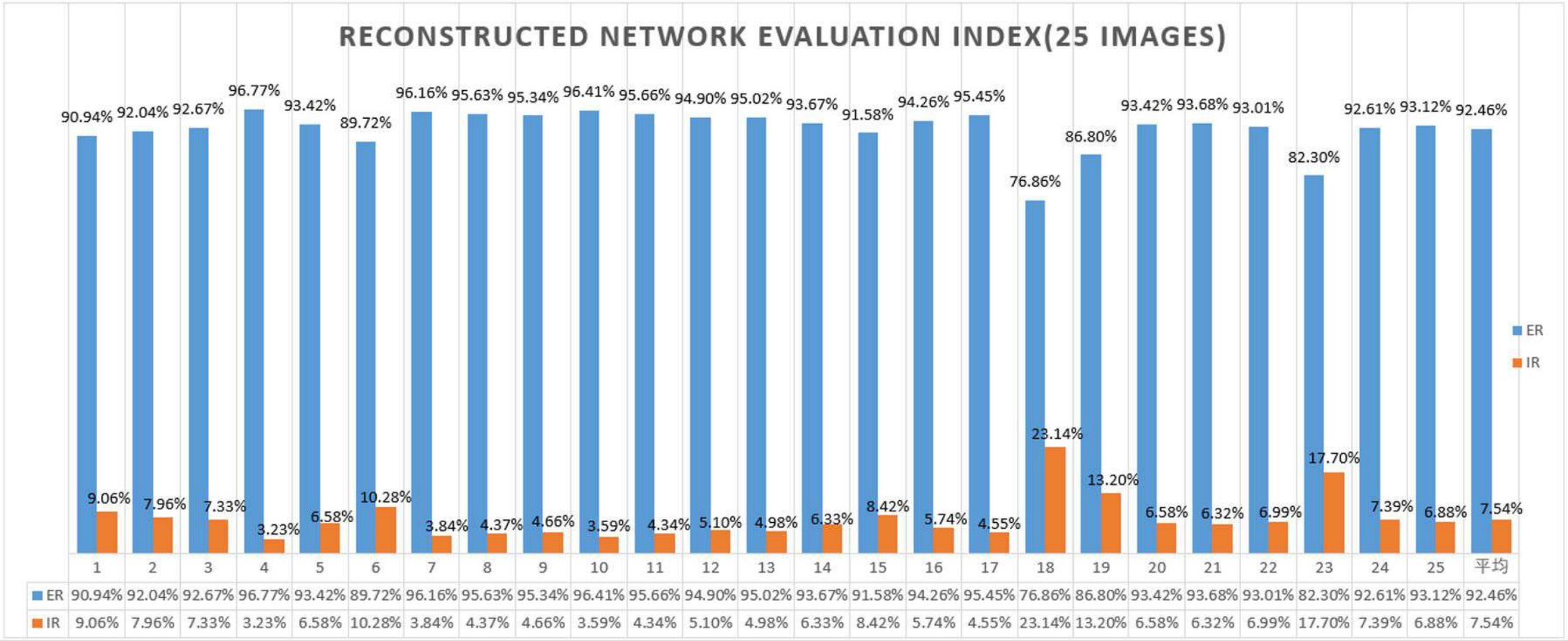
Pipeline of experiments



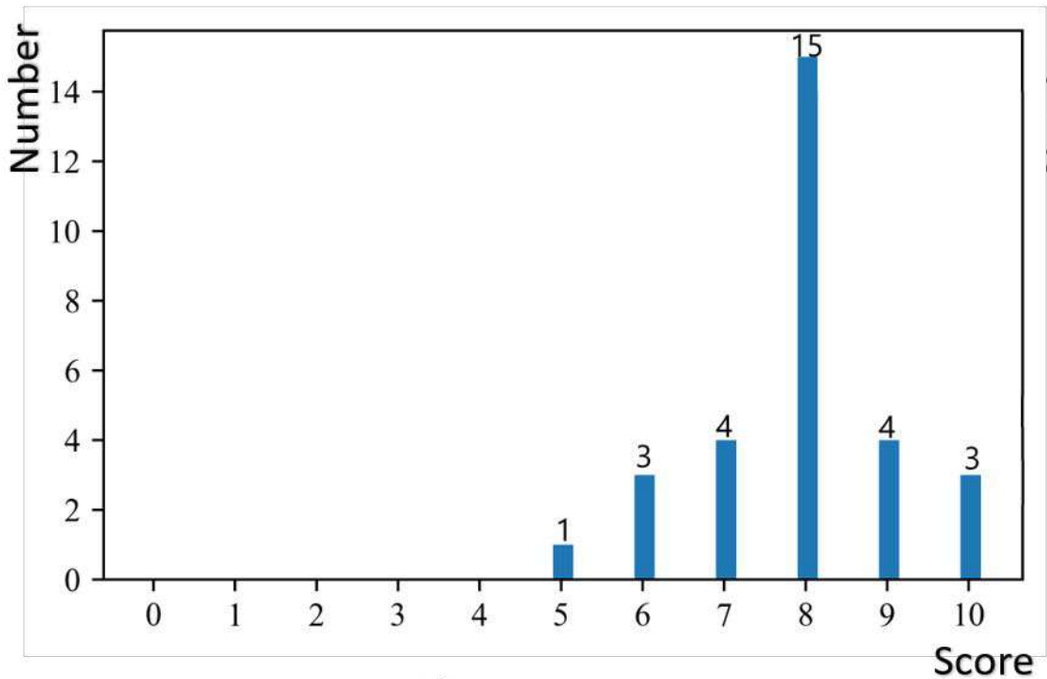

3
64
64 + 32
64
1
512 x 512
128
128 + 64
256 x 256
128
256
256 + 128
128 x 128
256
512
512 + 128
64 x 64
512
1024
32 x 32
2 x (Conv3x3 + RELU)
Max Pool 2x2
CBAM + Skip_connection
Sub-Pixel conv
Conv1x1

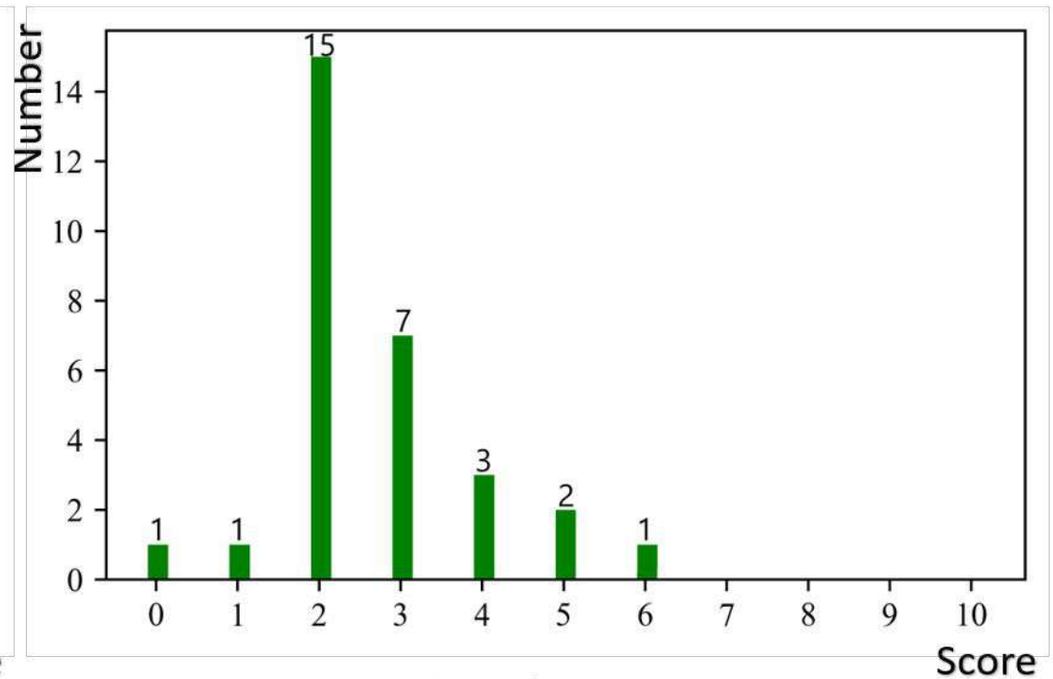

Element-wise multiplication
Element-wise addition
3
64
192
64
1
512 x 512
128
384
128
256 x 256
256
768
256
128 x 128
512
1024
512
64 x 64
1024
32 x 32
Global Discriminator
Ture/False
Local Discriminator
Ture/False
Random cropped patches
2 x (Conv3x3 + RELU)
Max Pool 2x2
Attention + Skip_connection
Up-conv 2x2
Conv1x1
Conv + LeakRelu


Improve UNet
EnlightenGAN
iterating
Improve UNet



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	平均
ER	90.94%	92.04%	92.67%	96.77%	93.42%	89.72%	96.16%	95.63%	95.34%	96.41%	95.66%	94.90%	95.02%	93.67%	91.58%	94.26%	95.45%	76.86%	86.80%	93.42%	93.68%	93.01%	82.30%	92.61%	93.12%	92.46%
IR	9.06%	7.96%	7.33%	3.23%	6.58%	10.28%	3.84%	4.37%	4.66%	3.59%	4.34%	5.10%	4.98%	6.33%	8.42%	5.74%	4.55%	23.14%	13.20%	6.58%	6.32%	6.99%	17.70%	7.39%	6.88%	7.54%





Network comparison

Image

Ground Truth

Various color explanations

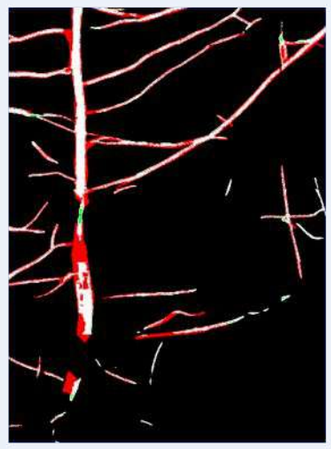
Annotation area of the Ground Truth/area where the predicted value is consistent with the Ground Truth

The area where the Ground Truth exists but is not predicted

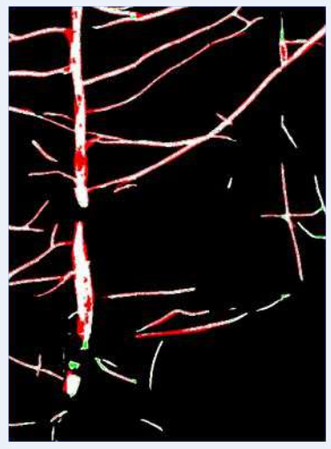
The area where the Ground Truth does not exists but is predicted

Ablation experiment

DeeplabV3+

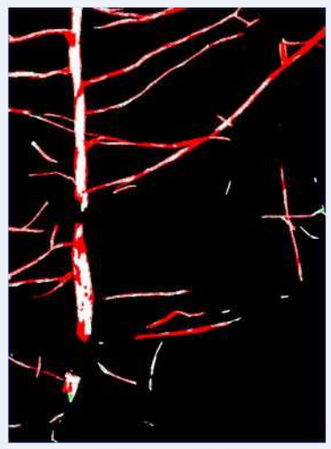


MobileNet V2

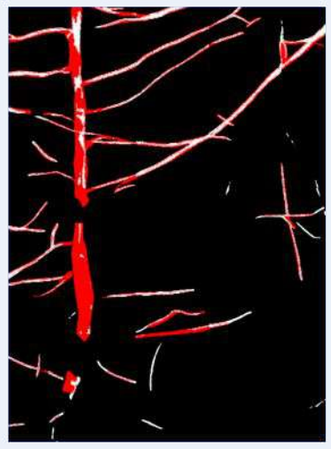


Xception

SegNet



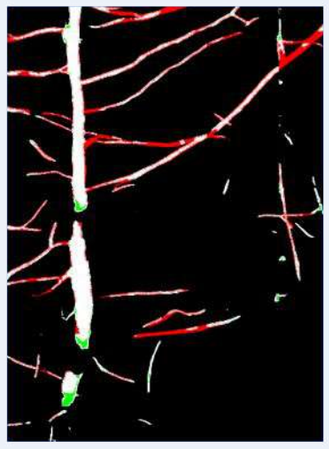
VGG16



ResNet50

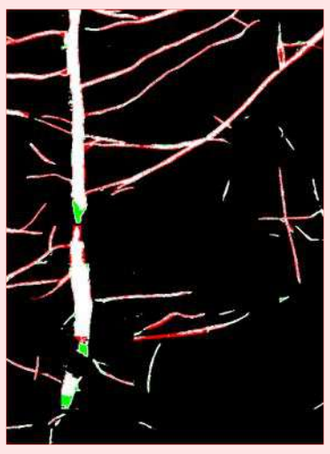
UNet

VGG16

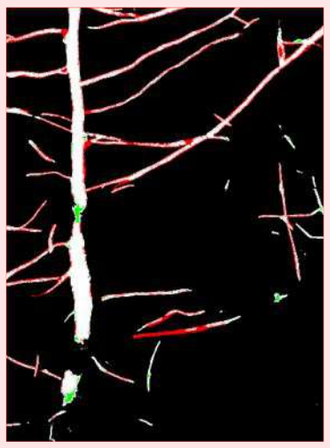


ResNet50

UNet+CBAM



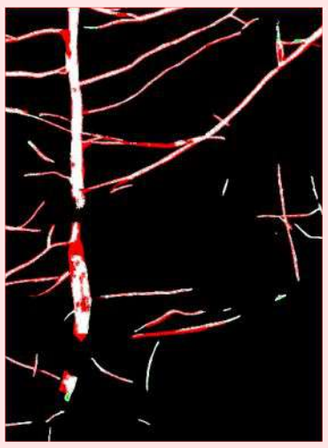
VGG16



ResNet50

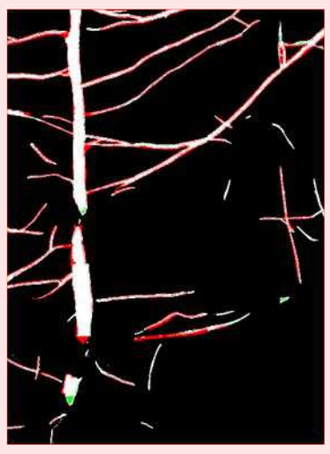
UNet+PixelShuffle

VGG16

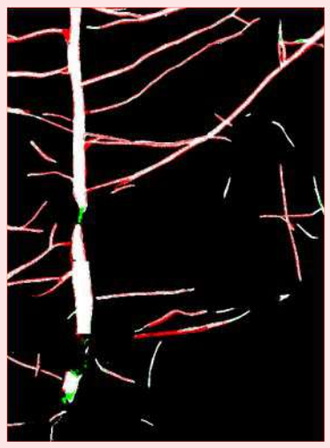


ResNet50

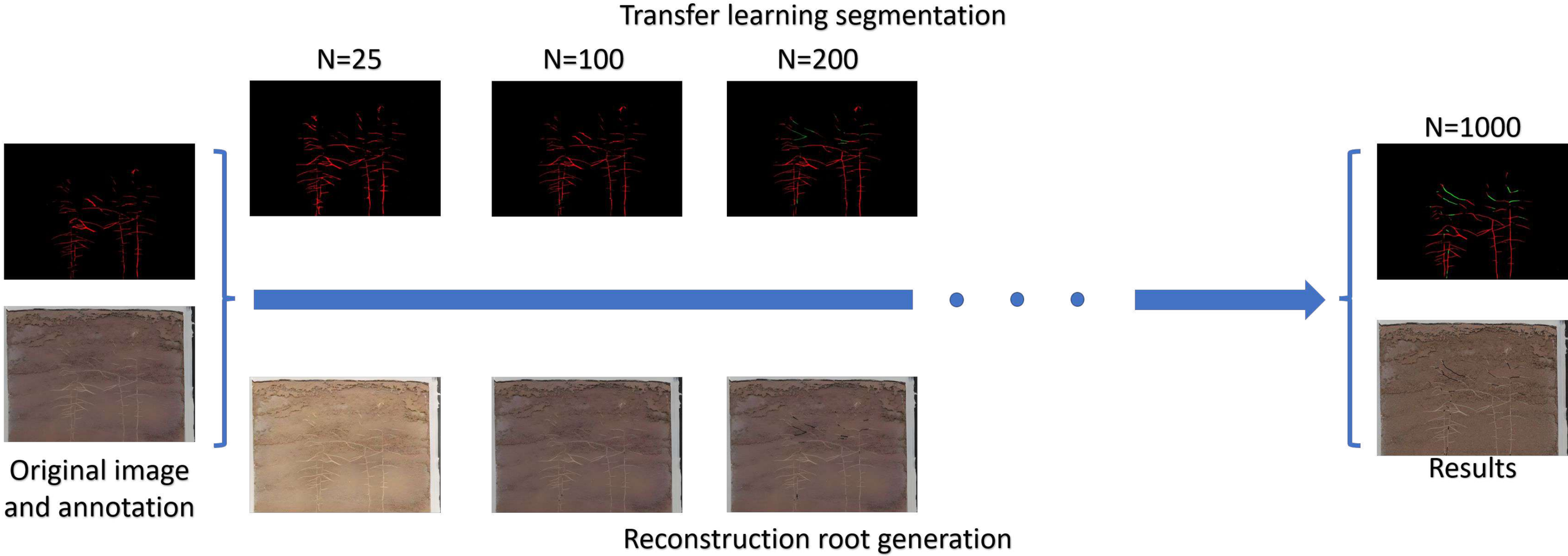
Improved UNet



VGG16



ResNet50


Transfer learning segmentation
N=25
N=100
N=200
N=1000
Original image
and annotation
Results
Reconstruction root generation