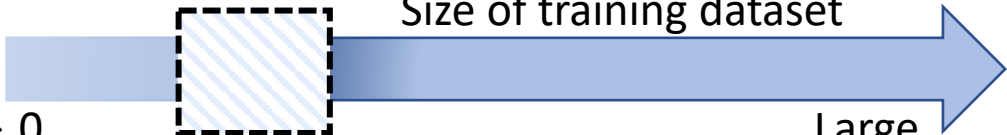


Accuracy of machine learning models



Size of training dataset



0



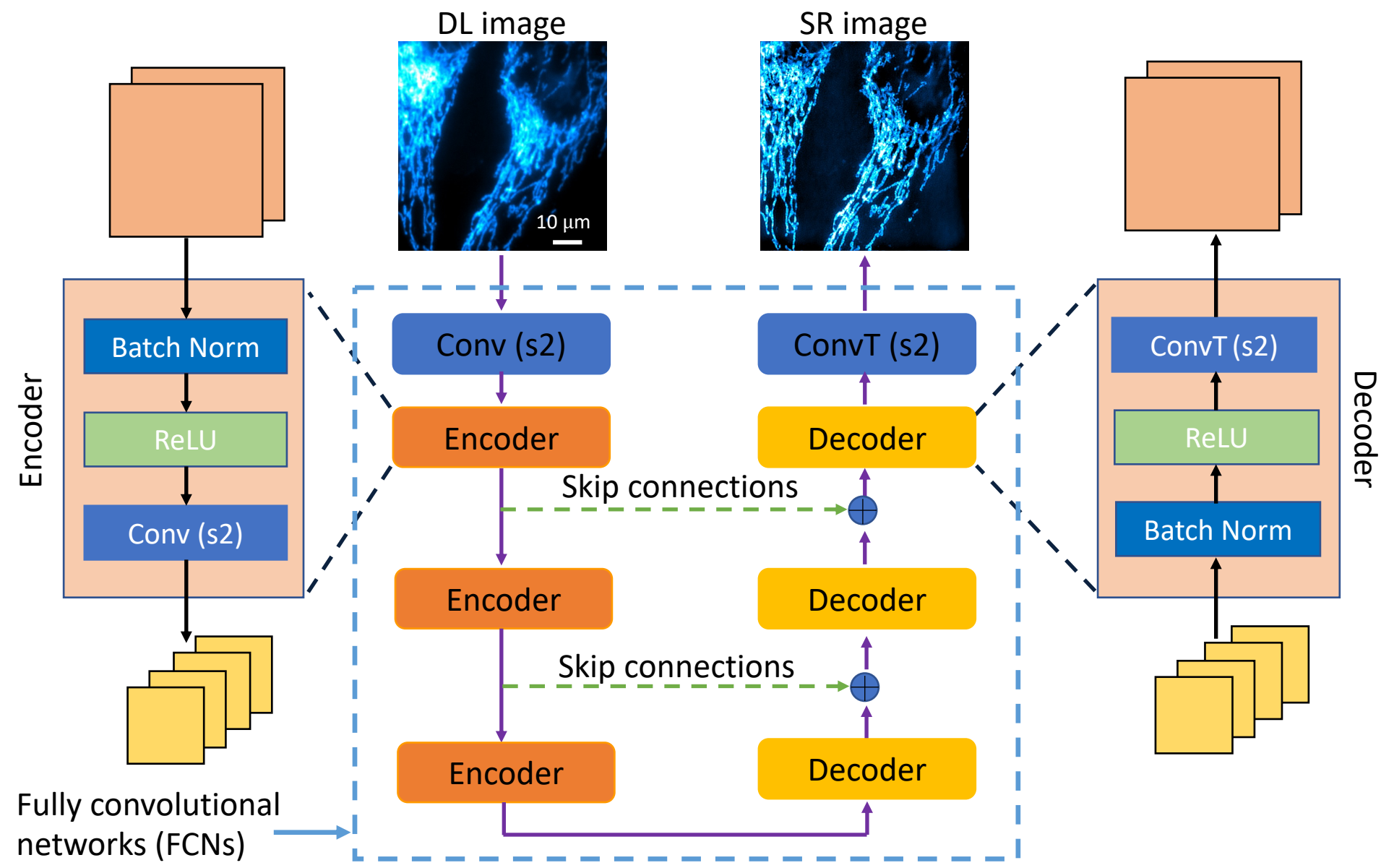
No training data.
Self-supervised
learning

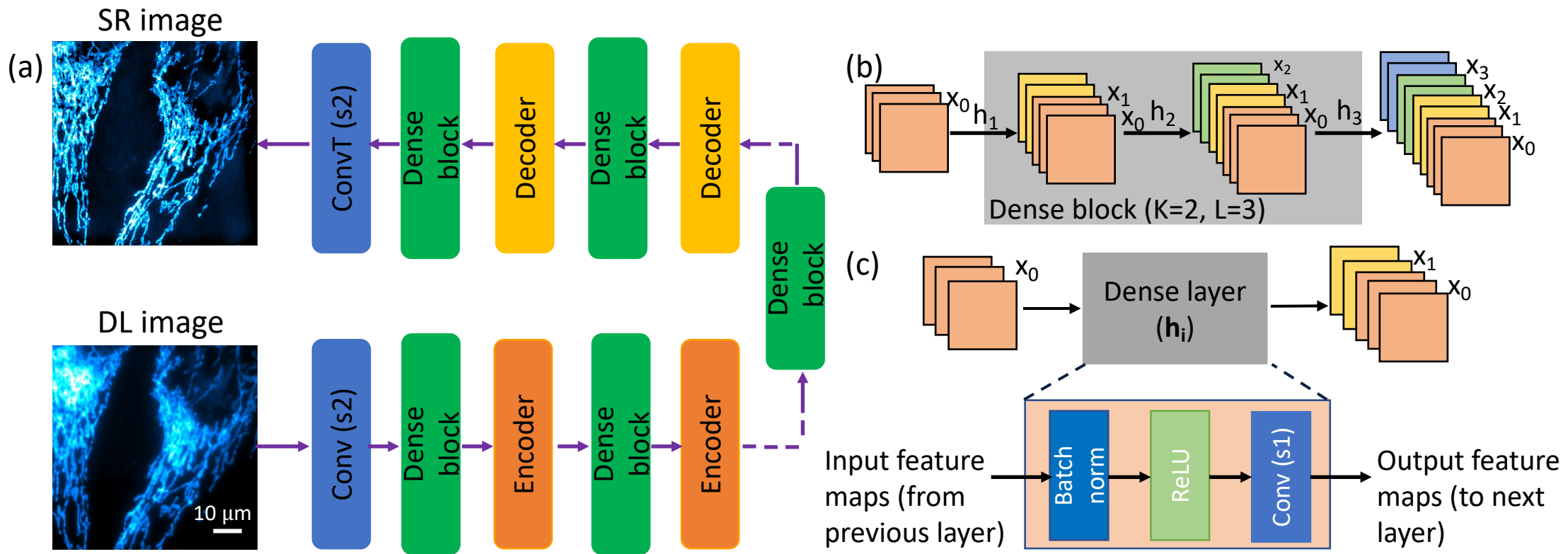


Small training data.
SRDenseED
(Our model)

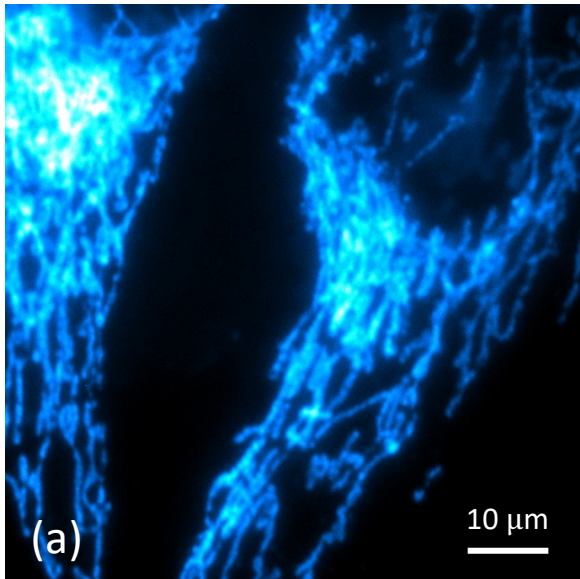


Large training data.
Supervised
learning

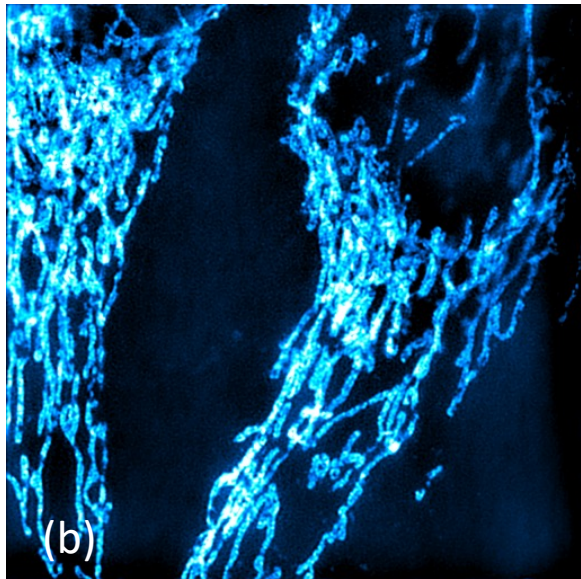


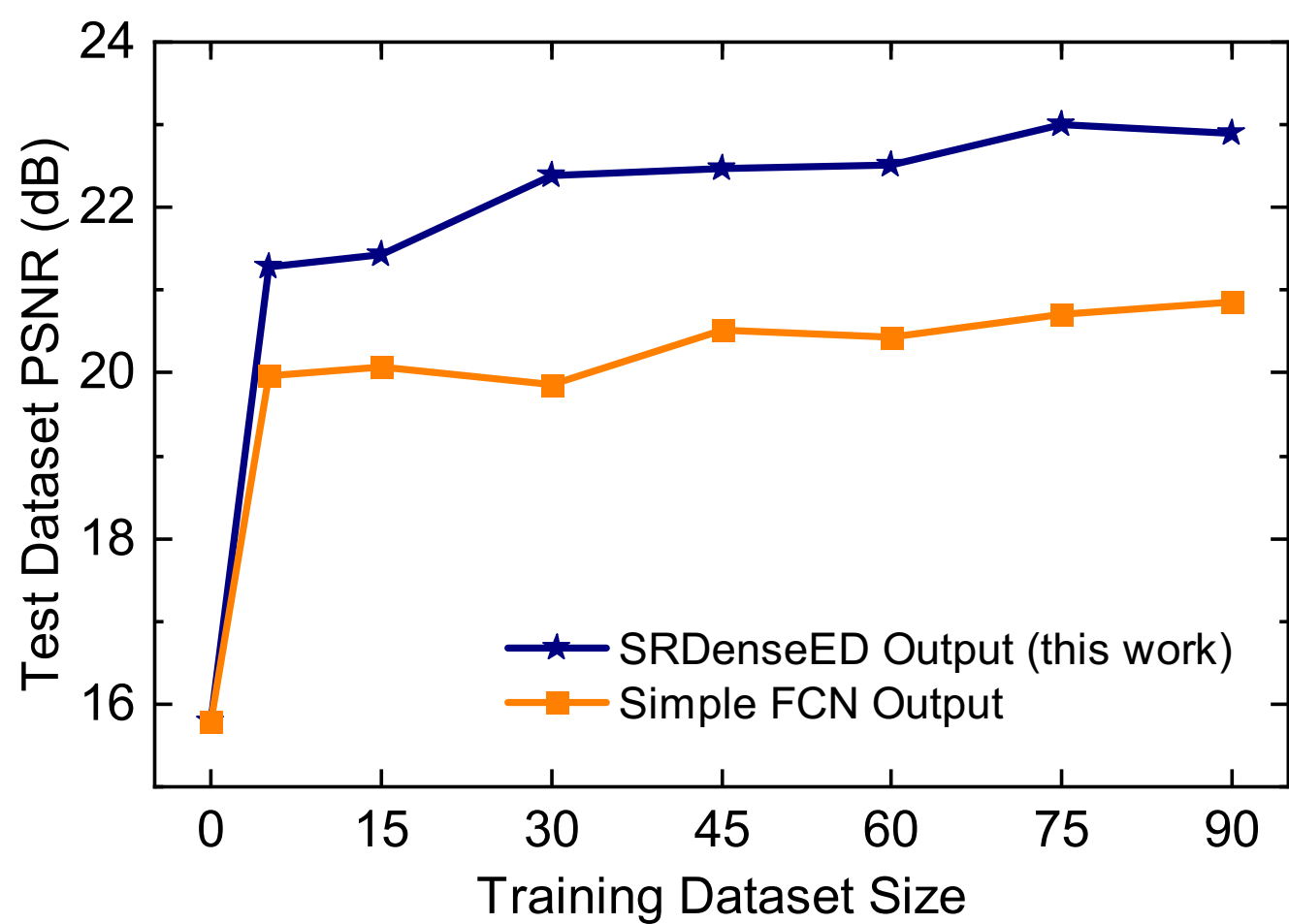


Input DL image

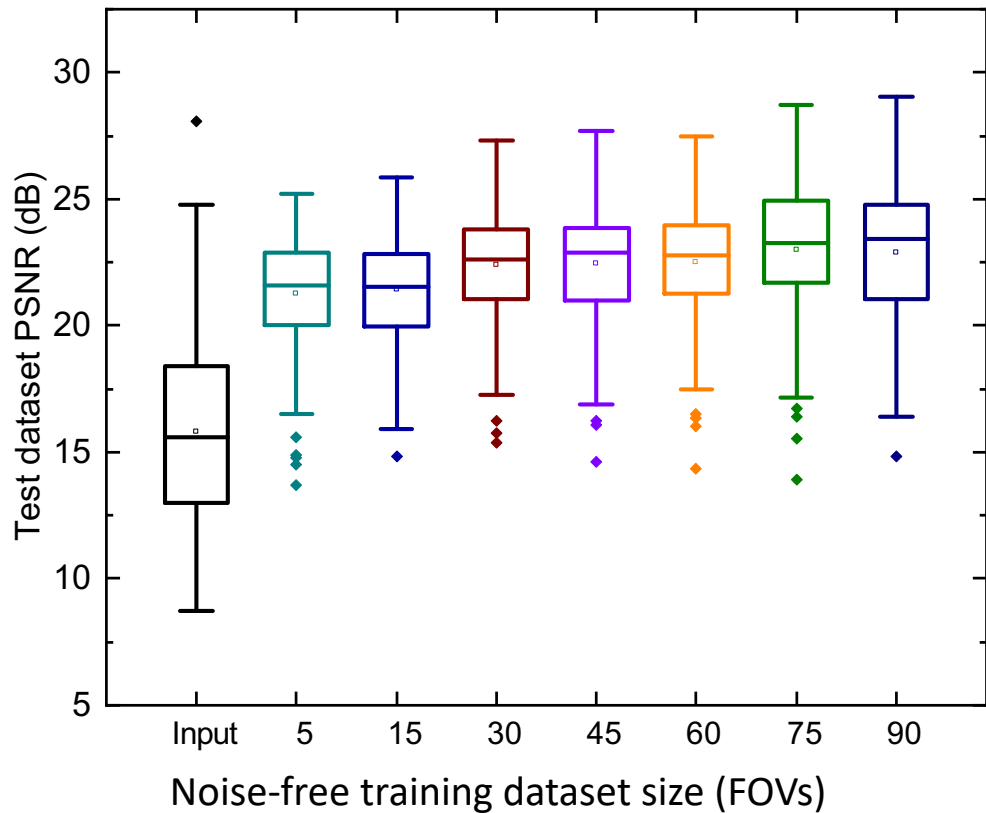


Target SR image

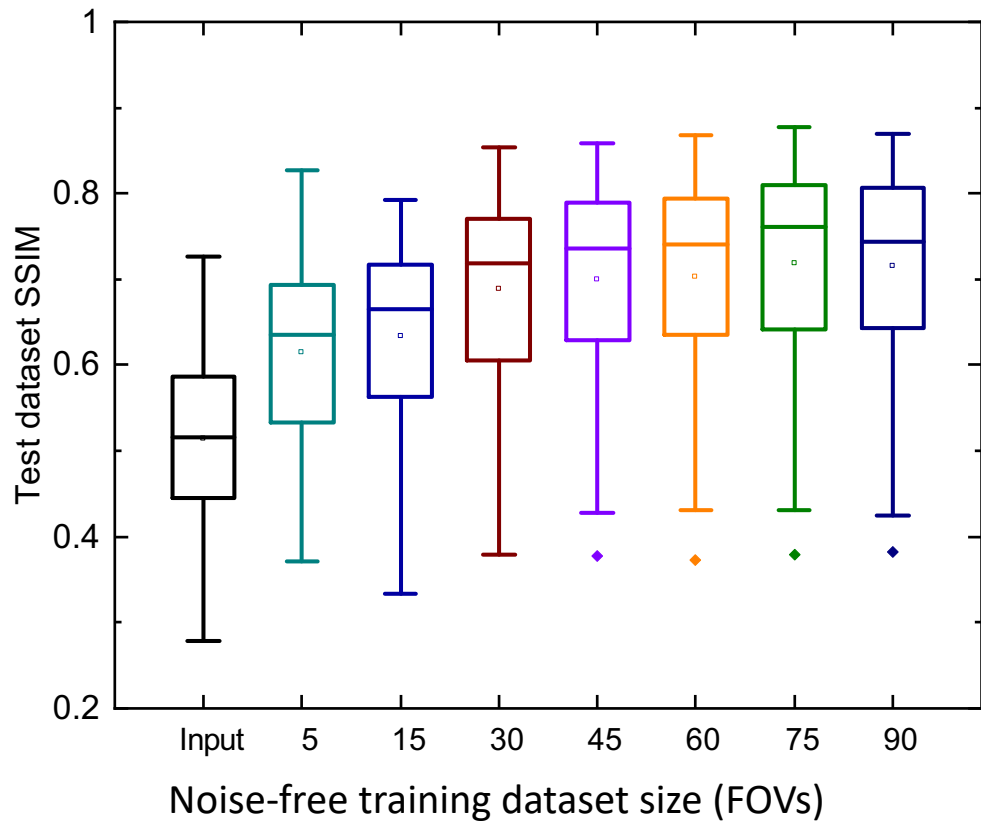




(a) Test dataset PSNR (dB)



(b) Test dataset SSIM

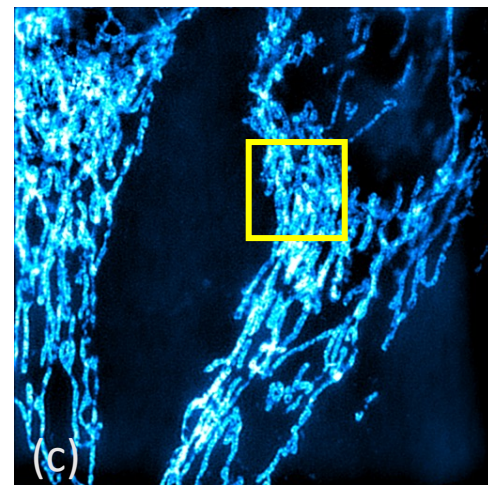
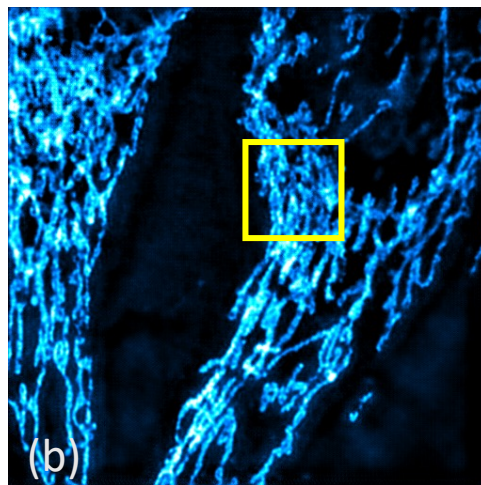
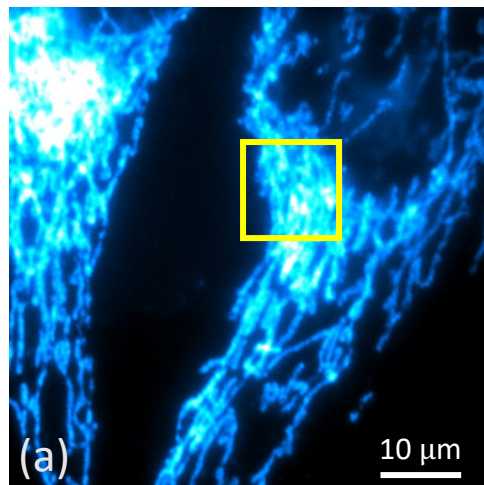


Input DL image

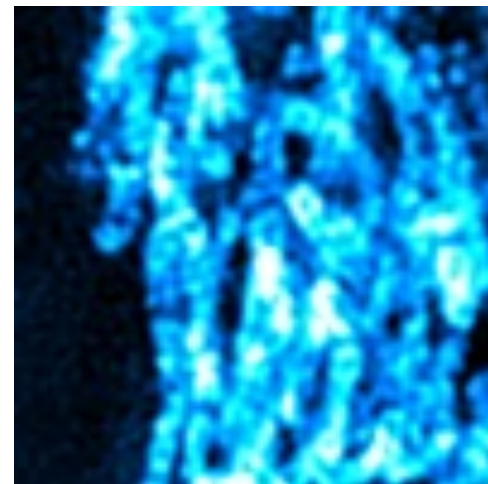
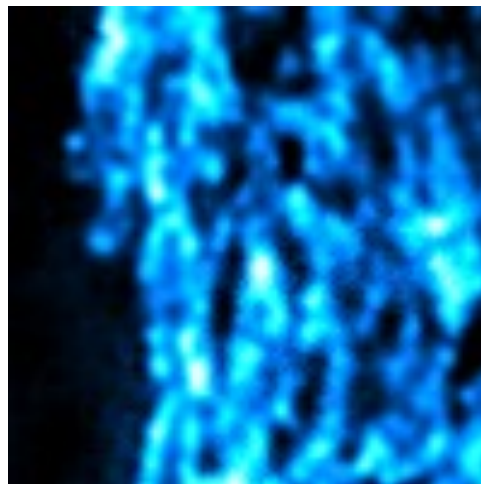
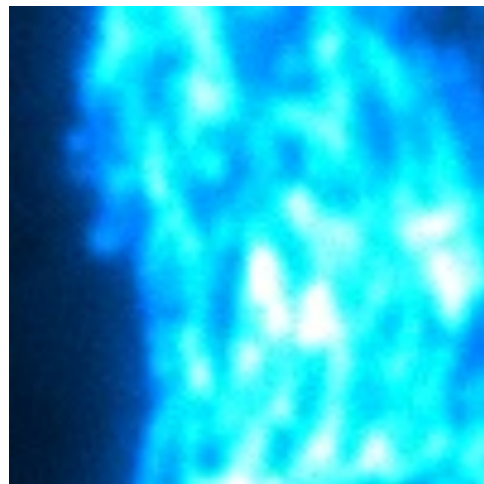
SRDenseED image

Target SR image

Full-image FOV



Selected ROI



Test Dataset PSNR (dB)

21
19.5
18
16.5
15

0

15

30

45

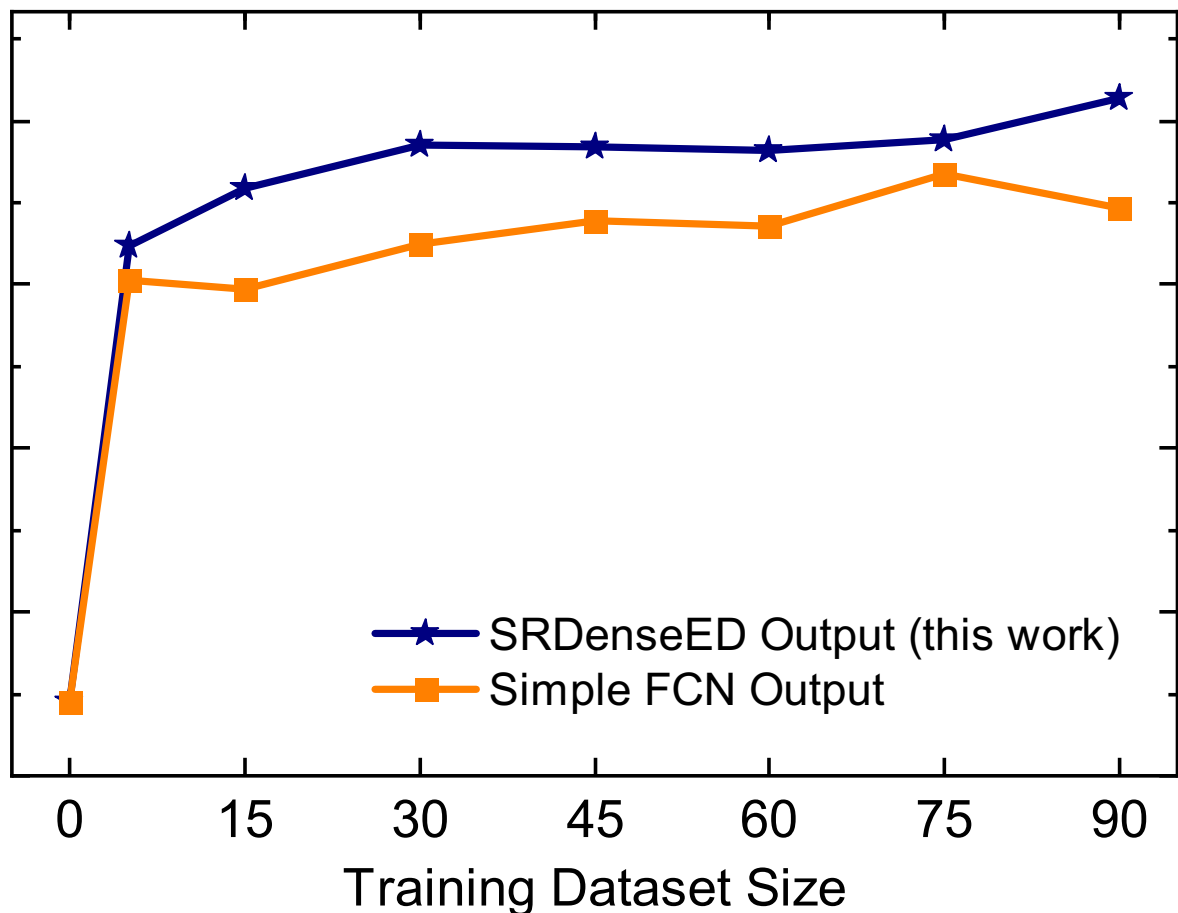
60

75

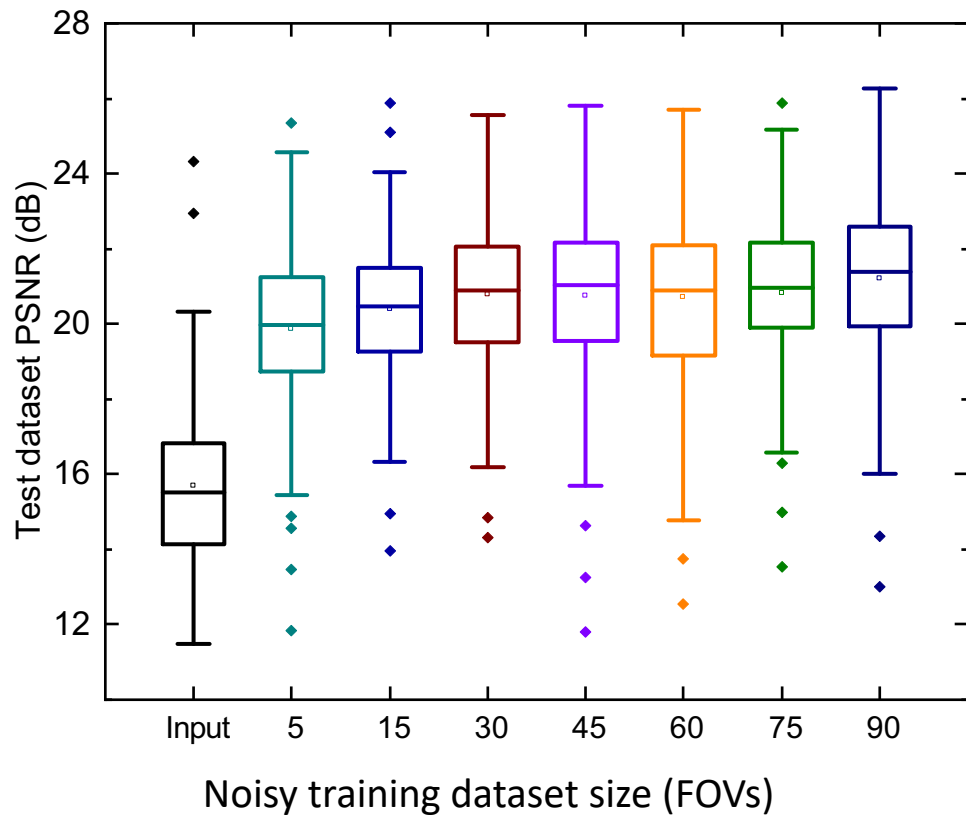
90

Training Dataset Size

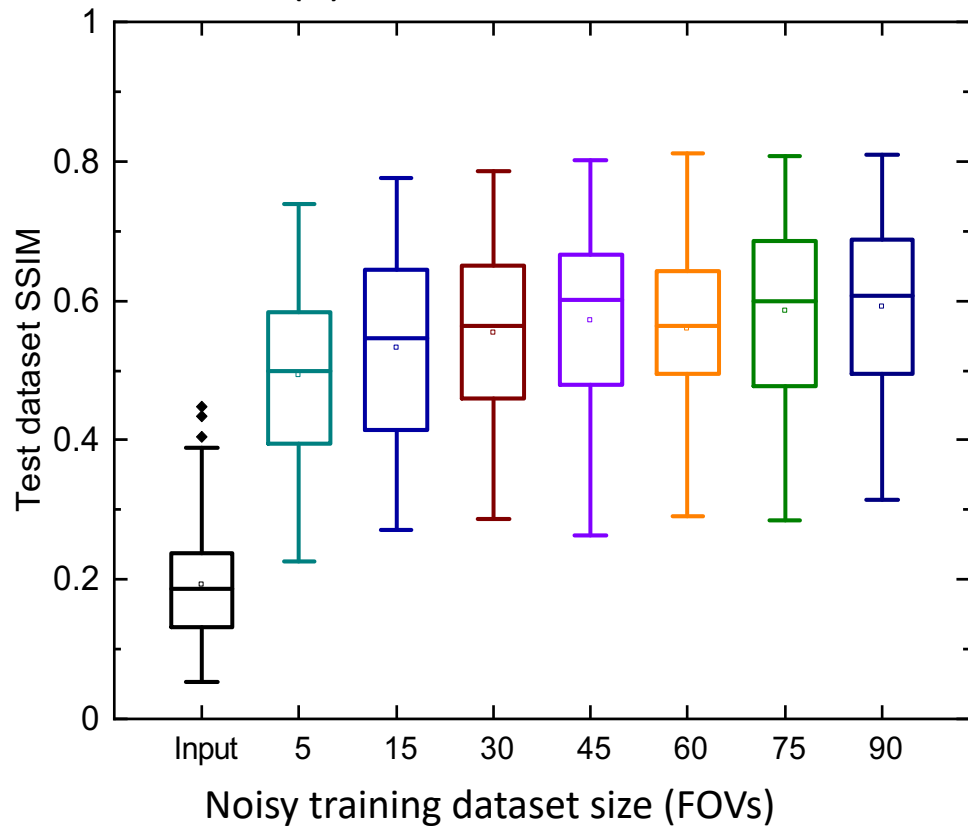
—★— SRDenseED Output (this work)
—■— Simple FCN Output



(a) Test dataset PSNR (dB)



(b) Test dataset SSIM

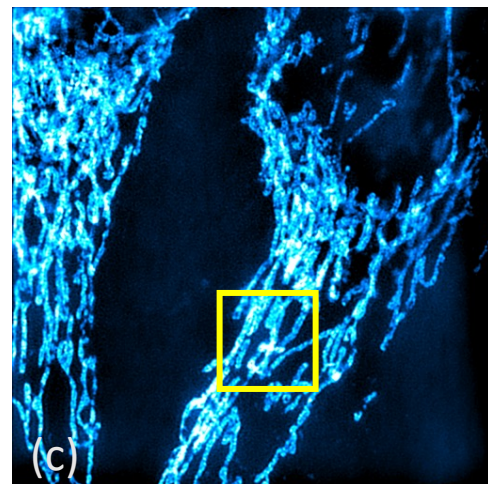
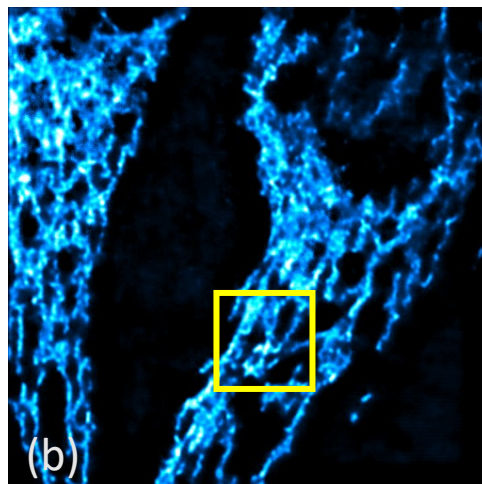
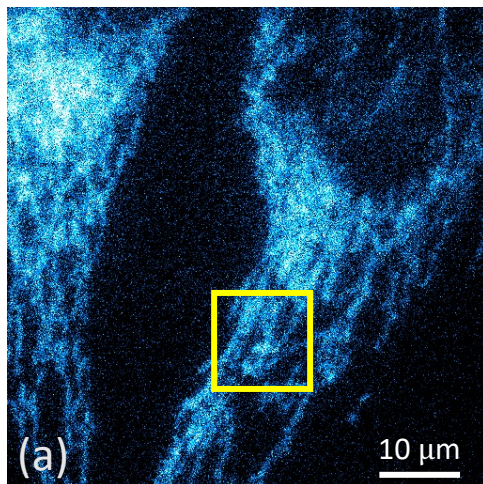


Noisy DL image

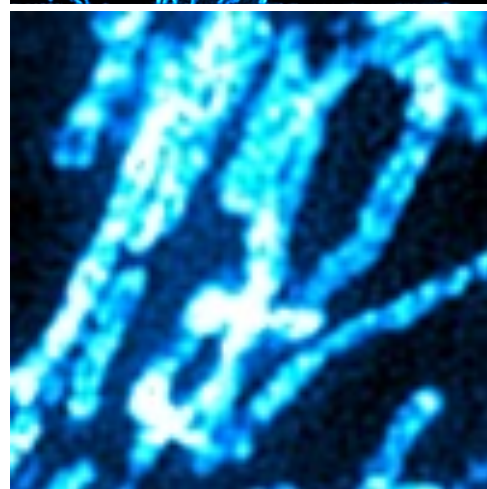
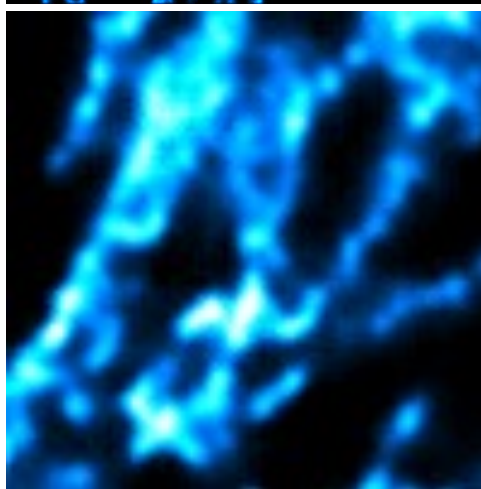
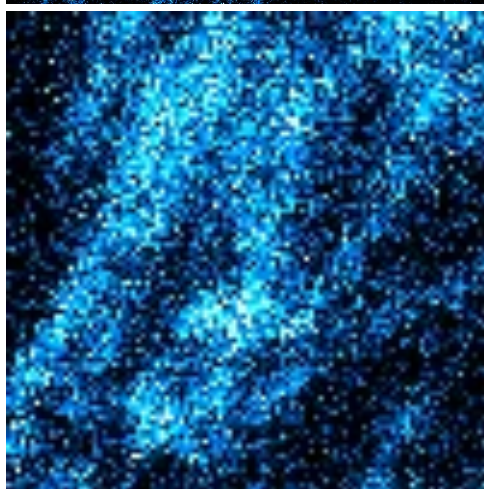
SRDenseED image

Target SR image

Full-image FOV



Selected ROI

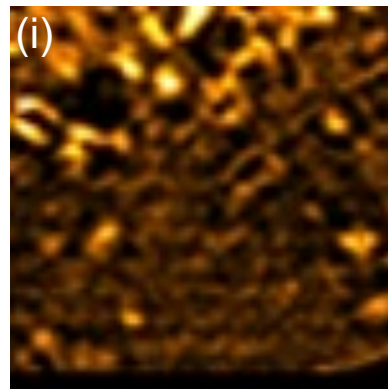
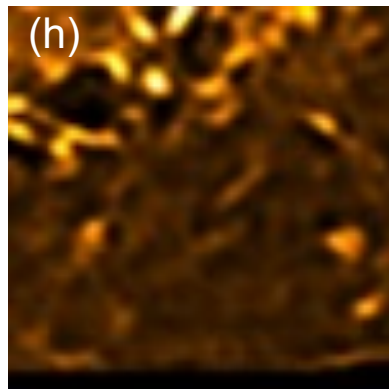
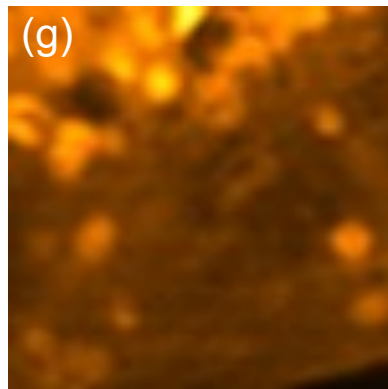
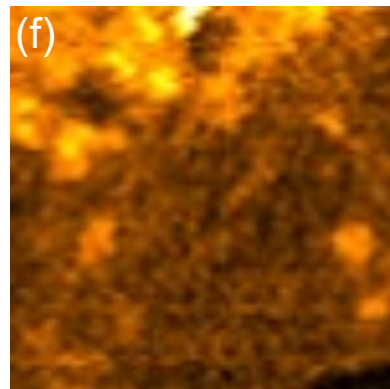
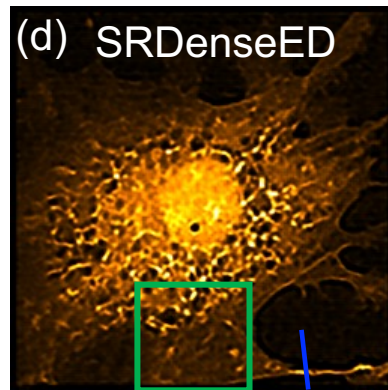
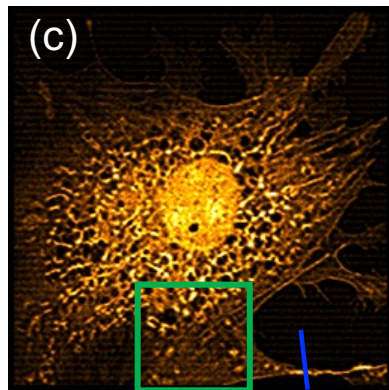
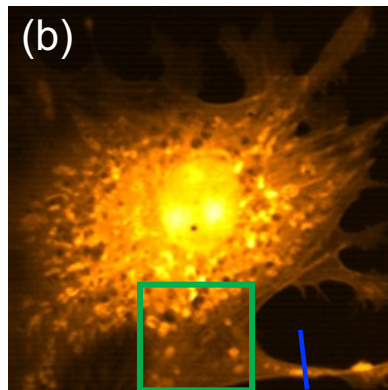
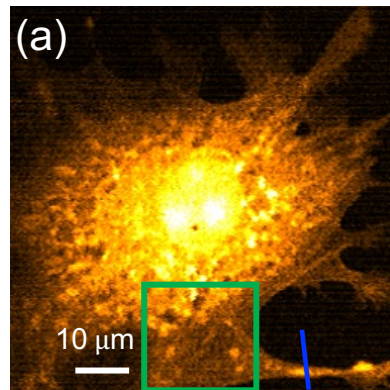


Noisy DL image

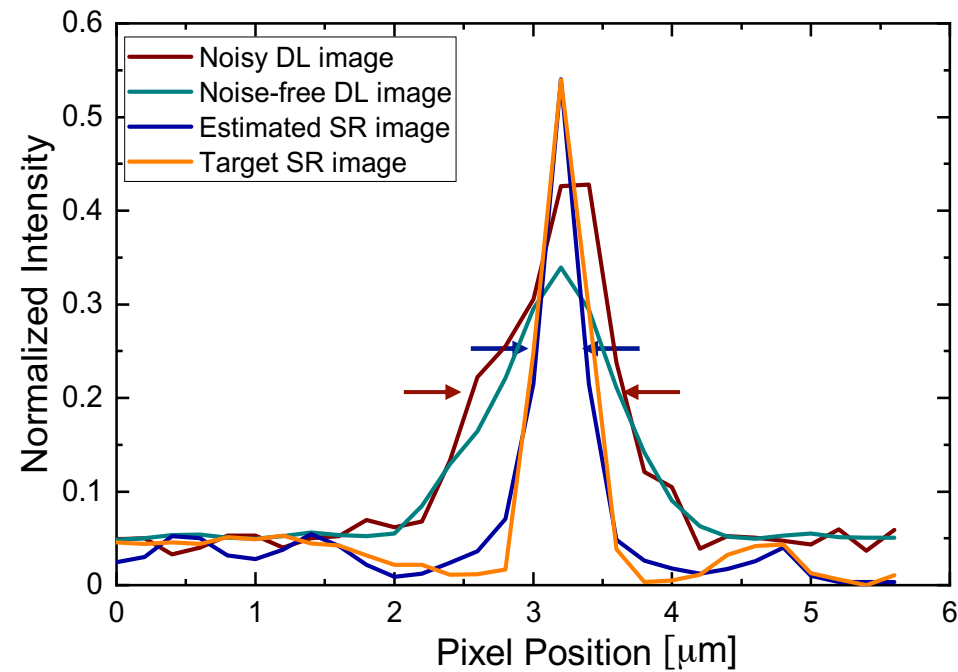
Noise-free DL image

Target SR image

Estimated SR image



(e) Line plot for resolution improvement

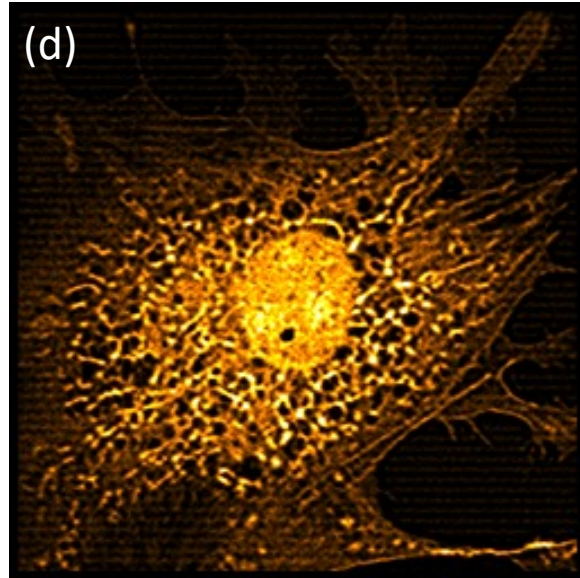
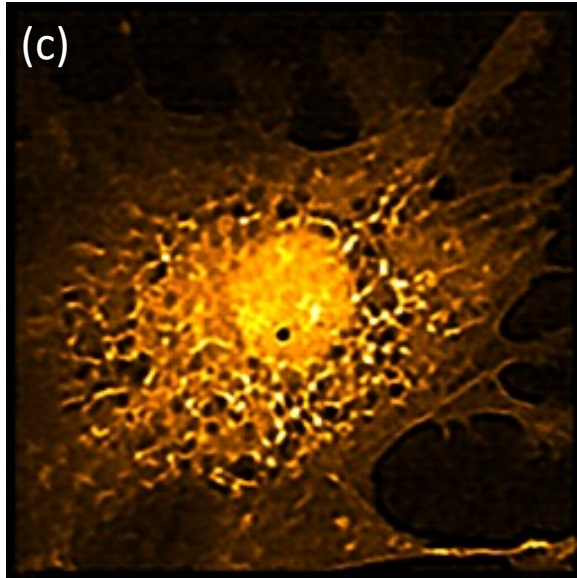
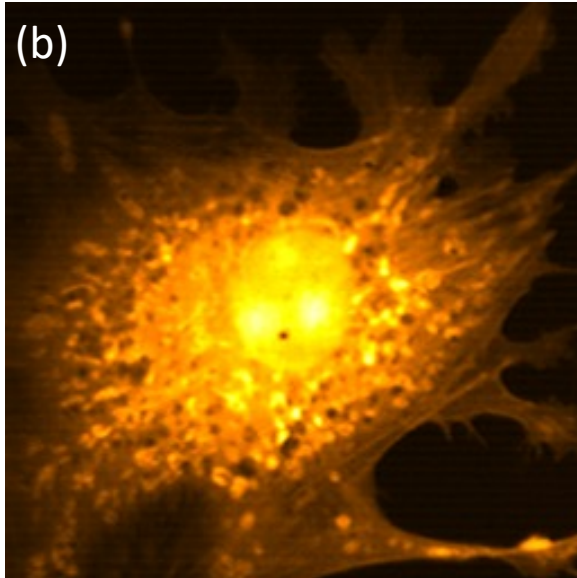
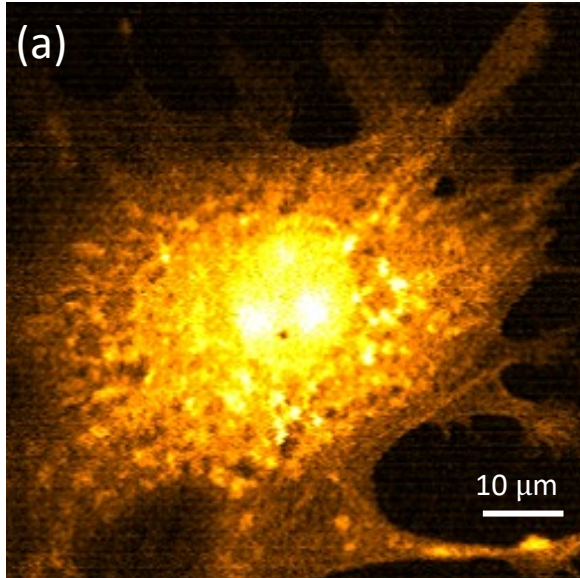


Input DL image

Averaged image

Estimated SRDenseED image

Target SR image



Input DL image

Estimated SR (DenseED FCNs)

Target SR image

(a)

(b)

(c)

10 μ m

