Supplementary Information for

Real-time resolution enhancement of confocal laser scanning microscopy via deep learning

1. Model structure details of the network

The network is based on Res U-Net and consists of an Encoder-Decoder structure, as shown in Fig. S1(a). The encoder has four downsampling blocks. Every downsampling block consists of 1×1 convolutional layer, a 3×3 convolutional layer with ReLU activation, a dropout layer, and a 3×3 convolutional layer with ReLU activation, as show in Fig. S1(b). Maxpooling layer with a 2×2 pool size is used to reduce spatial dimensions. The decoder consists of four upsampling blocks, and it can concatenate features from the encoder's skip connection. Every upsampling block has transposed convolution, concatenation of skip connection features, and two sets of 3×3 convolutions with ReLU activations, as show in Fig. S1(c).
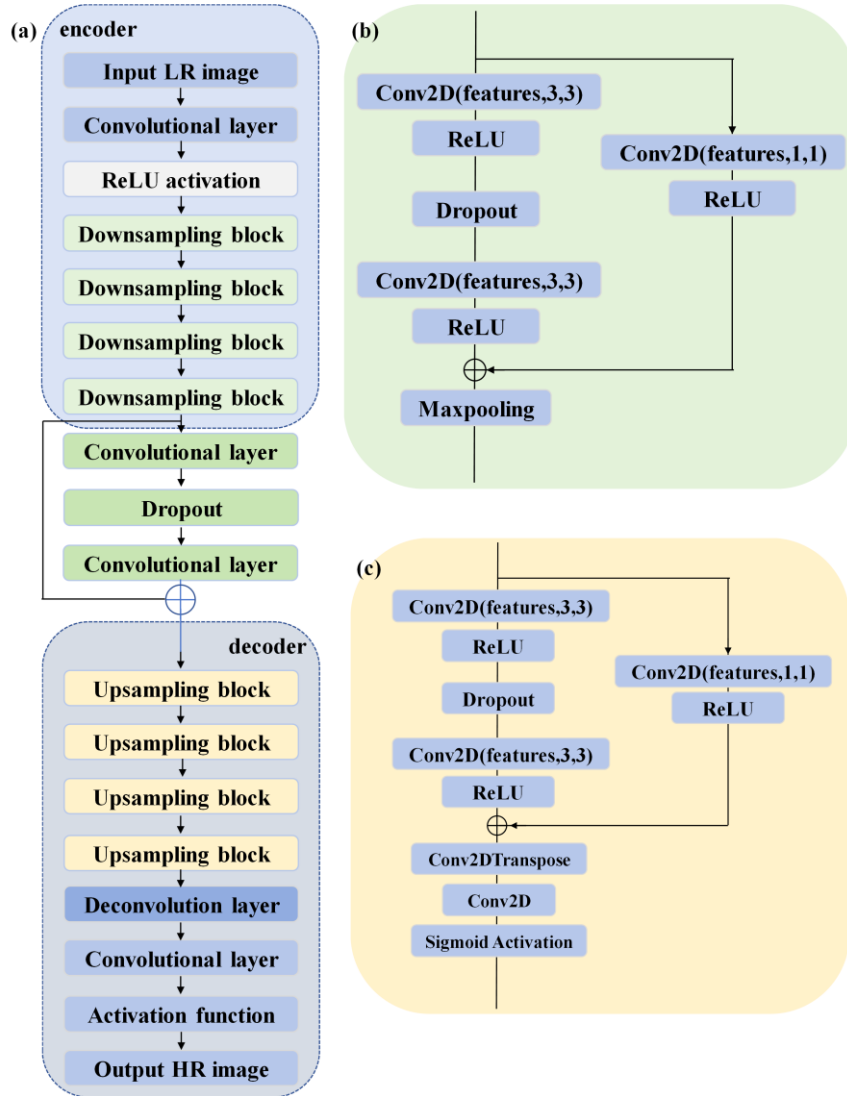

Figure. S1 (a) The architecture of Network. (b) The composition of downsampling block. (c) The composition of upsampling block.