

Infrared Image Super-resolution via Transfer Learning and PSRGAN

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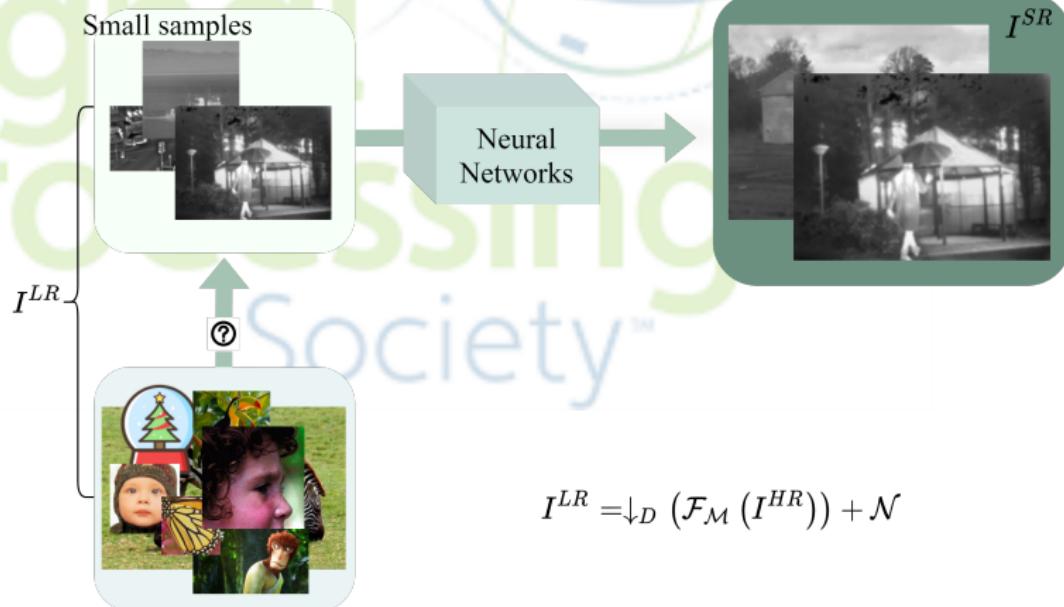
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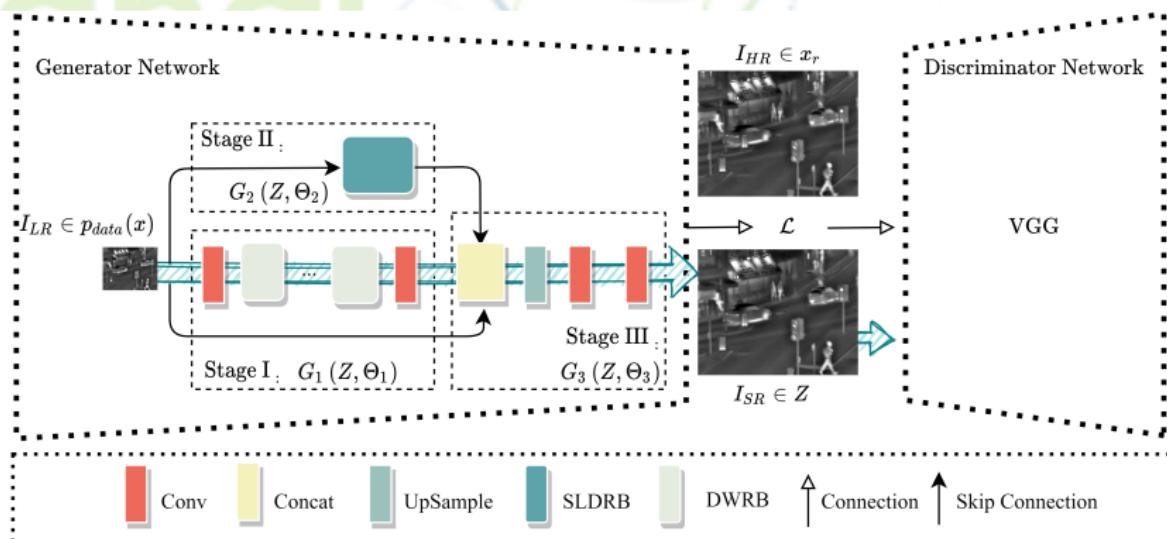


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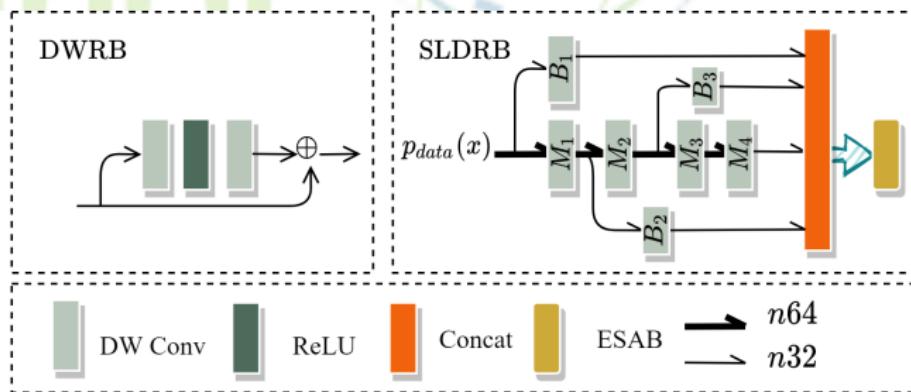
Background



PSRGAN Architecture



DWRB & SLDRB



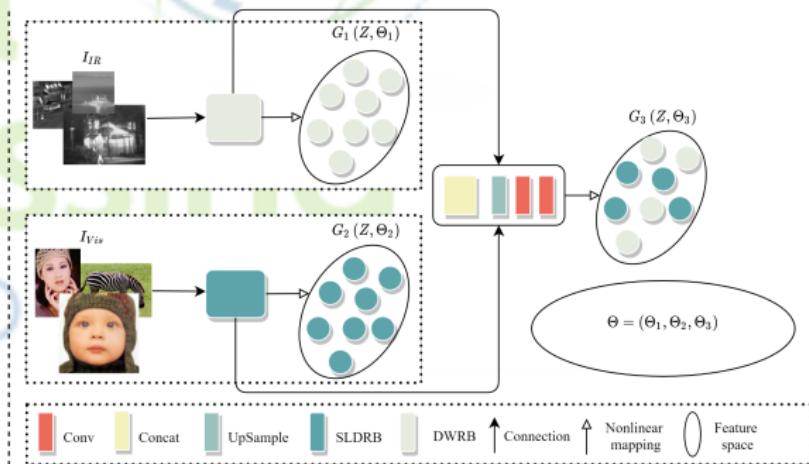
Multi-stage Transfer Learning Strategy

Algorithm 1 Multi-stage Transfer Learning Strategy

```

Input:  $\lambda$ ,  $p_{data}(x)$ 
Output: PSRGAN parameters  $\Theta$ 
1: Init: Initialize parameters  $\Theta$ 
2: while PSRGAN not convergent do
3:   for Stage I not convergent do
       $\nabla_{\Theta} \mathcal{L}(G_1(Z_1; \Theta_1))$ 
       $+ \lambda \cdot \nabla_{\Theta} d_{KL}(G_1(Z_1; \Theta_1), p_{data}(x))$ 
4:   return  $G_1(Z_1; \Theta_1)$ 
5:   for Stage II not convergent do
       $\nabla_{\Theta} \mathcal{L}(G_2(Z_2; \Theta_2))$ 
       $+ \lambda \cdot \nabla_{\Theta} d_{KL}(G_2(Z_2; \Theta_2) | (G_1), p_{data}(x))$ 
6:   return  $G_2(Z_2; \Theta_2)$ 
7:   for Stage III not convergent do
       $\nabla_{\Theta} \mathcal{L}(G_3(Z_3; \Theta_3))$ 
       $+ \lambda \cdot \nabla_{\Theta} d_{KL}(G_3(Z_3; \Theta_3) | (G_1, G_2), p_{data}(x))$ 
8:   return  $G_3(Z_3; \Theta_3)$ 
9: return  $\Theta = (\Theta_1, \Theta_2, \Theta_3)$ 

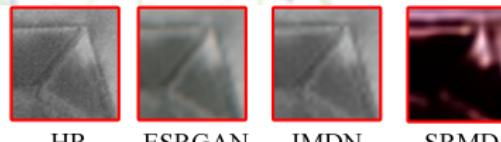
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Experiment Results



HR fused18 From results-A



HR

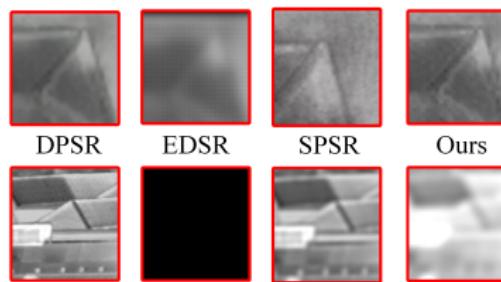
ESRGAN

IMDN

SRMD



HR result21 From results-C

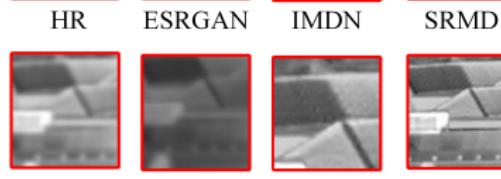


DPSR

EDSR

SPSR

Ours

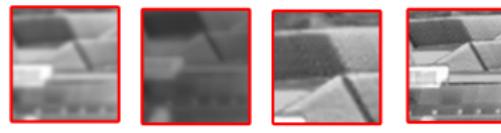


HR

ESRGAN

IMDN

SRMD



DPSR

EDSR

SPSR

Ours



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Thank you for listening!

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