HRDA Loss Explained

(원 논문 리뷰)

(+ 저번에 물어보셨던 것에 대한 더 나은 답변 드립니다!)

✔️ High Resolution vs. Low Resolution 관련

High resolution 이미지에 bilinear downsampling ζ 을 활용해서 Low Resolution을 만들었다고 합니다 :) (다른 UDA에선 crop도 자주 활용하는데, 여기선 전체 영역을 담기 위해 bilinear downsampling을 활용했어요!)

[Low resolution 수식]

$x_{LR}^T = \zeta(x_{HR}^T, 1/s_T) \in \mathbb{R}^{\frac{H_T}{s_T} \times \frac{W_T}{s_T} \times 3}$

(s_T: dataset specific factor로 1 이상의 scalar 값)

Preliminary

📎 **Basic Notations**

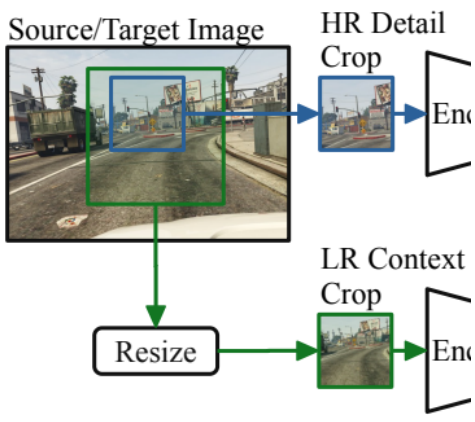
f_θ: **neural network**

m: **index** H: **height** W: **width** HR: **High resolution** LR: **Low resolution**

$\mathcal{X}^S = \{x_{HR}^{S,m}\}_{m=1}^{N_S}$: **source domain images (**$x_{HR}^{S,m} \in \mathbb{R}^{H_S \times W_S \times 3}$**)**

$\mathcal{X}^T = \{x_{HR}^{T,m}\}_{m=1}^{N_T}$: **target domain images (**$x_{HR}^{T,m} \in \mathbb{R}^{H_T \times W_T \times 3}$**)**

$\mathcal{Y}^S = \{y_{HR}^{S,m}\}_{m=1}^{N_S}$: **labels for the source domain (**$\{y_{HR}^{S,m}\}_{m=1}^{N_S} \in \{0,1\}^{H_S \times W_S \times C}$**)**



x_c: **context crop (**$\in \mathbb{R}^{h_c \times w_c \times 3}$**)**

x_d: **detail crop** ($\in \mathbb{R}^{h_d \times w_d \times 3}$)

($h_c = h_d$, $w_c = w_d$)