

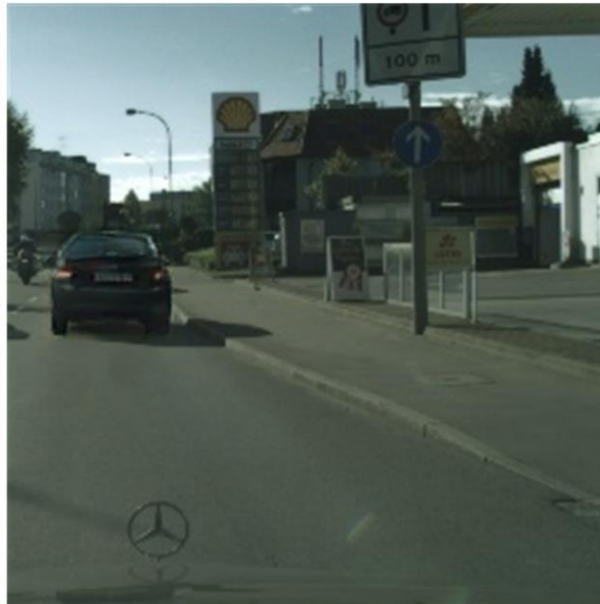


SIEDOB: Semantic Image Editing by Disentangling Object and Background

Wuyang Luo¹, Su Yang^{1*}, Xinjian Zhang¹, Weishan Zhang²
¹Fudan University ²China University of Petroleum



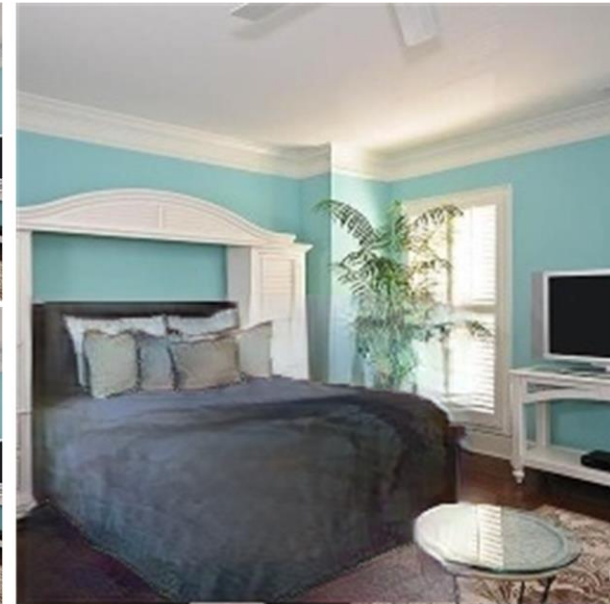
Input & Edit



Edited Result



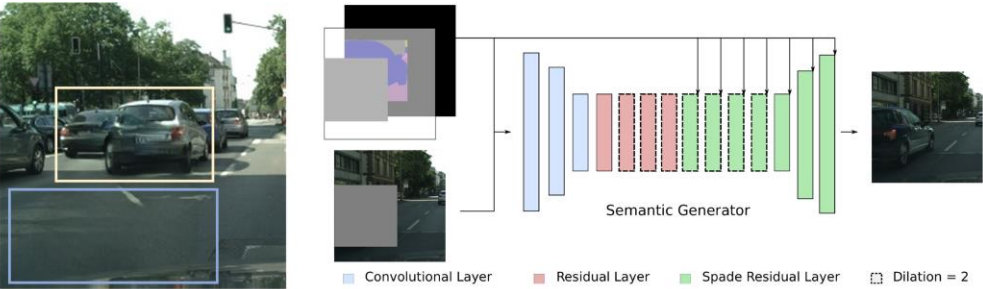
Input & Edit



Edited Result



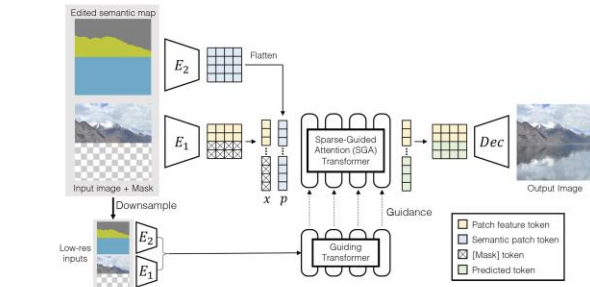
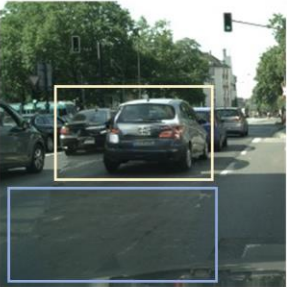
Previous Works and Their Shortcomings



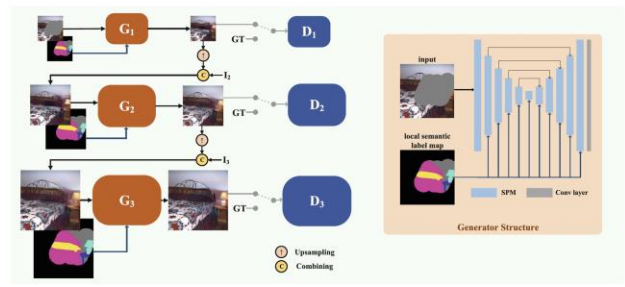
SESAME (ECCV2020, Ntavelis et al.)



Input & Edit

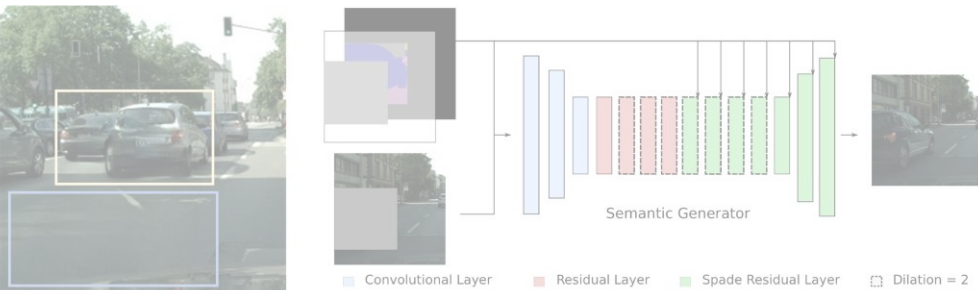


ASSET (SIGGRAPH 2022, Liu et al.)



SPMPGAN (ECCV 2022, Luo et al.)

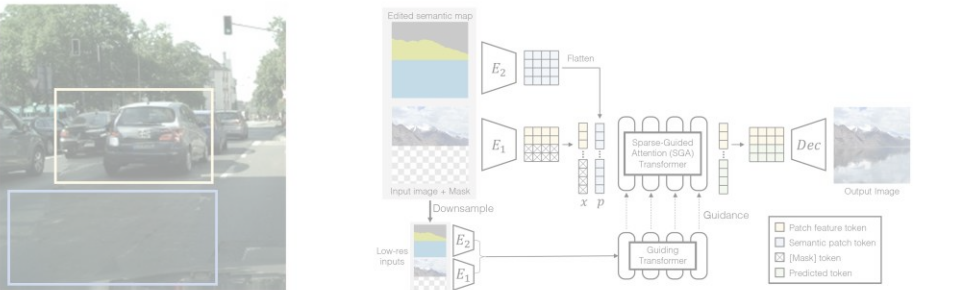
Core Idea of *SIEDOB*



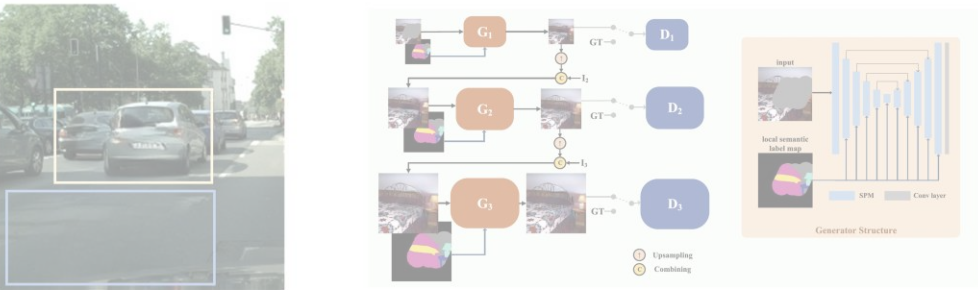
SESAME (ECCV2020, Ntavelis et al.)



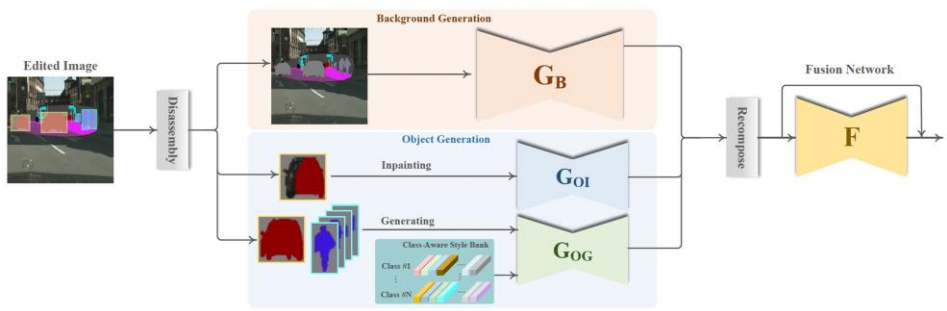
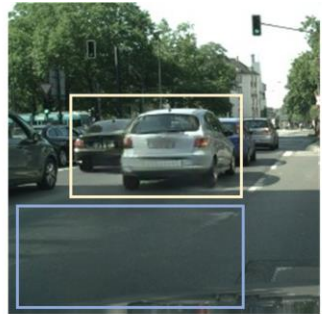
Input & Edit



ASSET (SIGGRAPH 2022, Liu et al.)

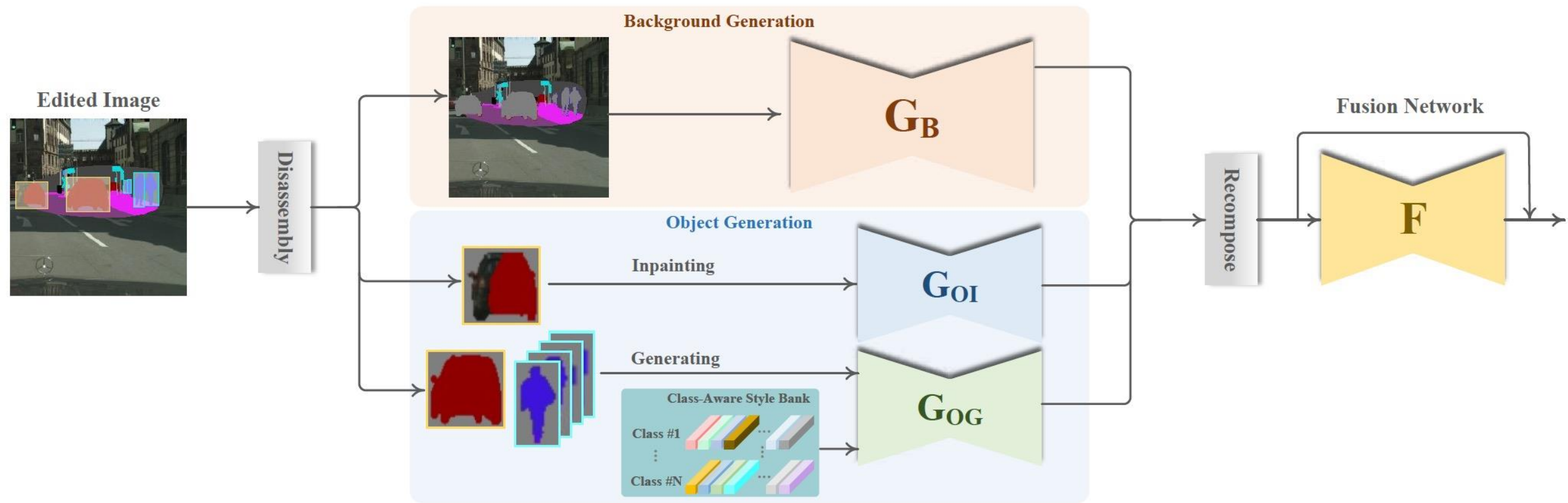


SPMPGAN (ECCV 2022, Luo et al.)

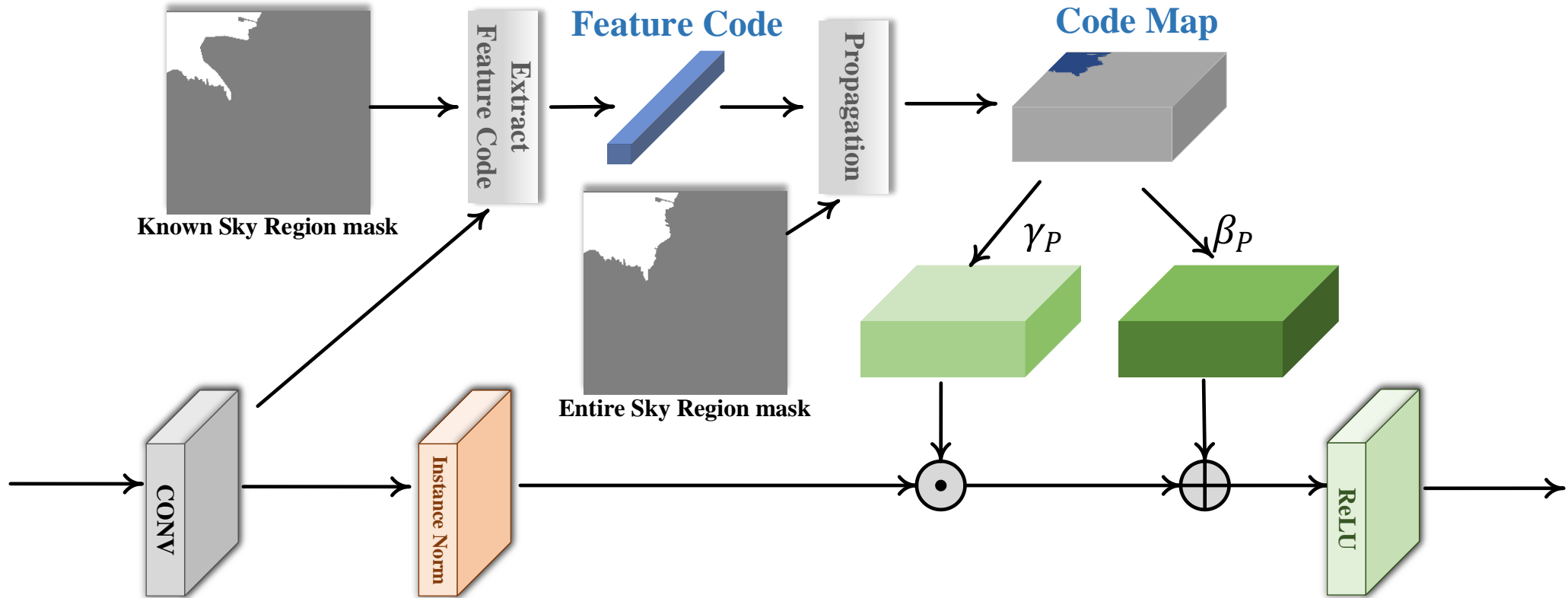


SIEDOB (This work)

Framework of *SIEDOB*

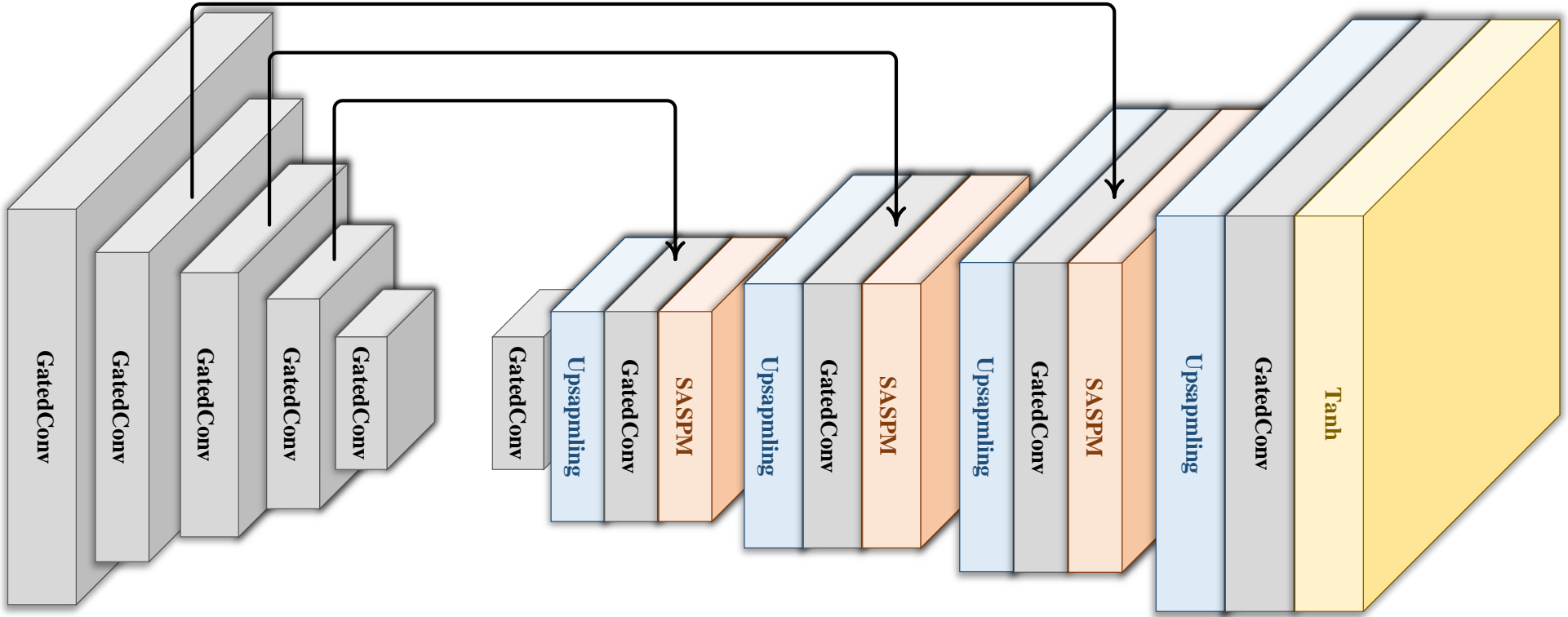


Background Generation: *SASPM*



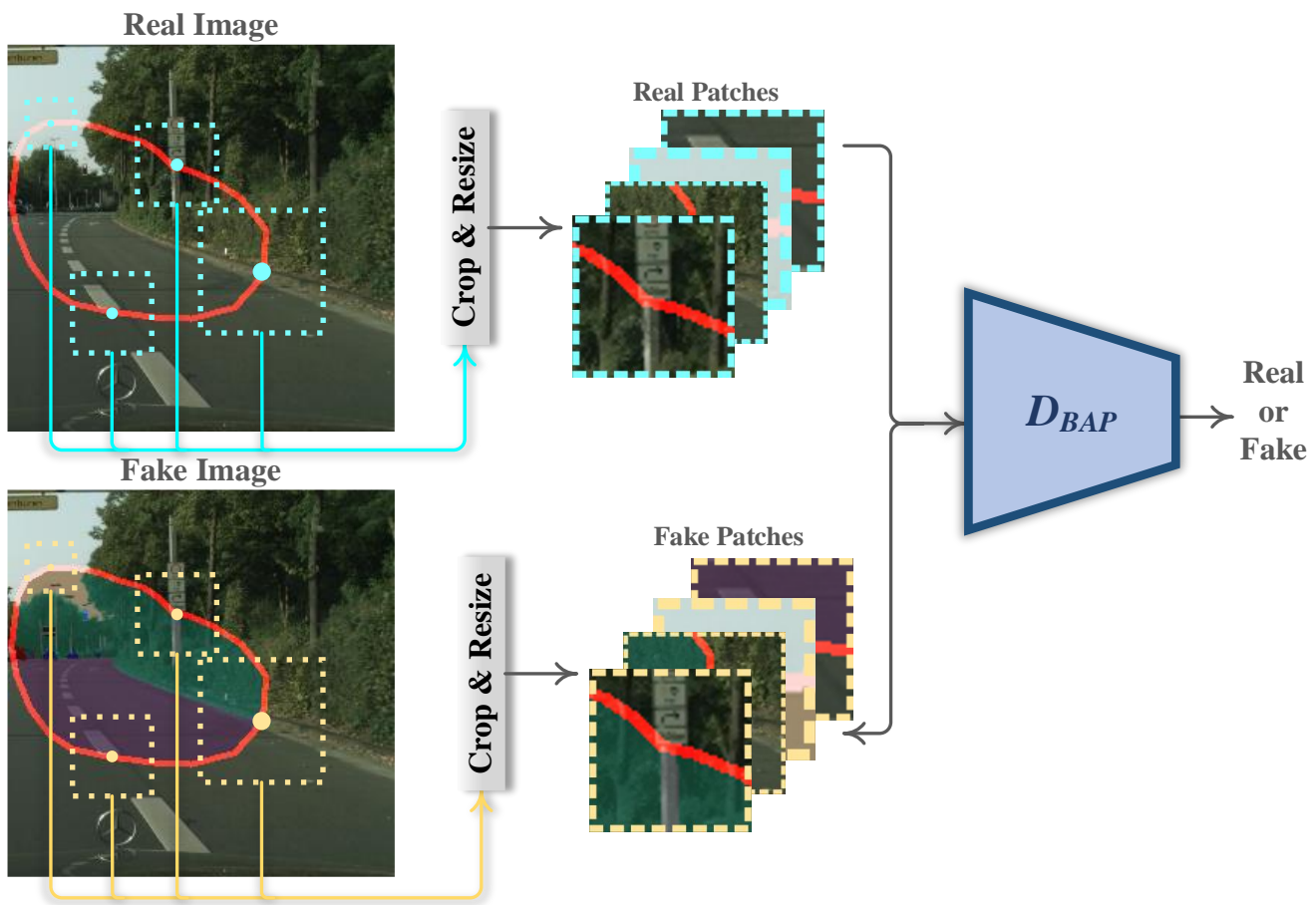
Principle of SASPM

Background Generation: *Generator*

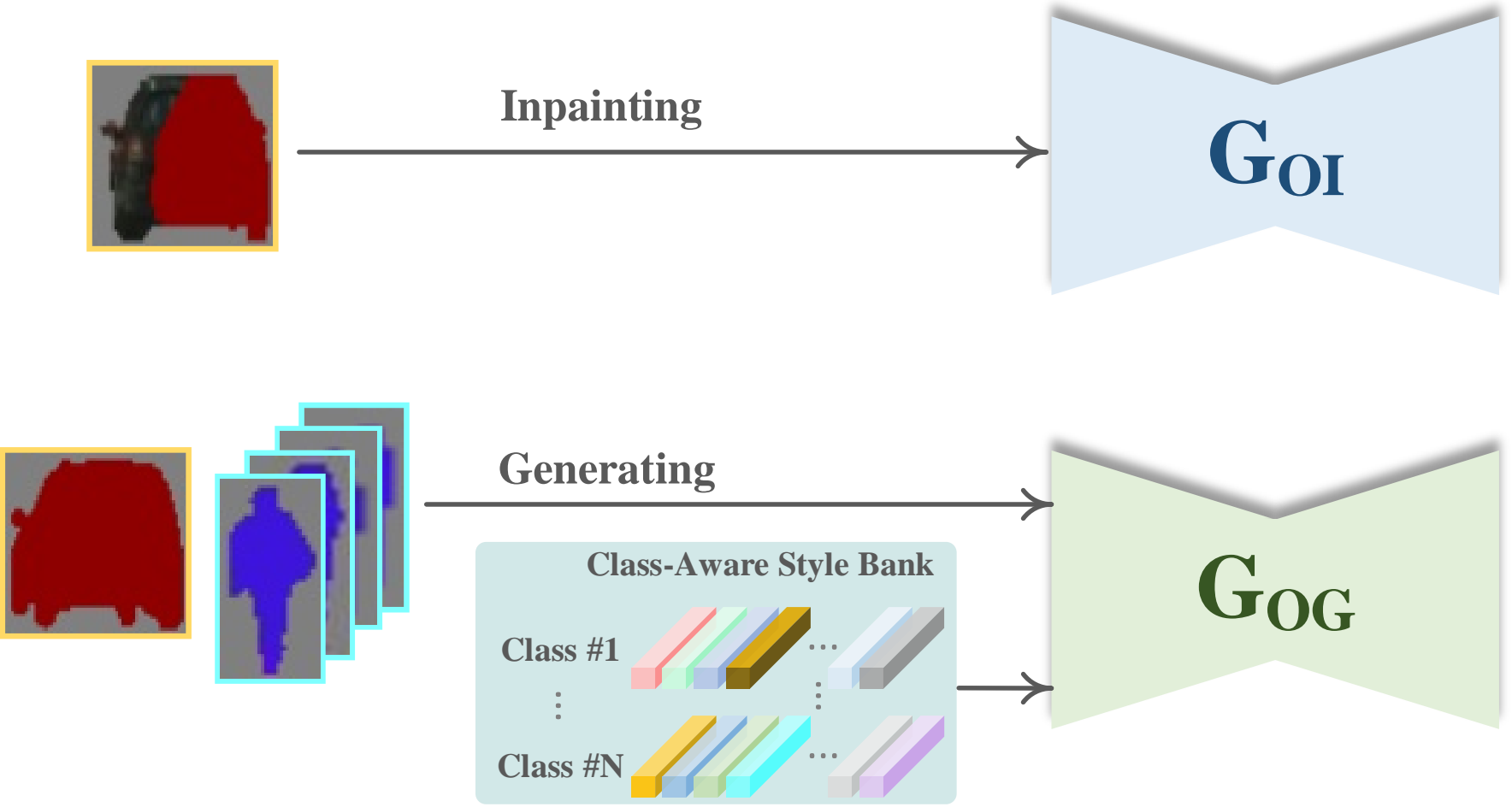


Background Generator

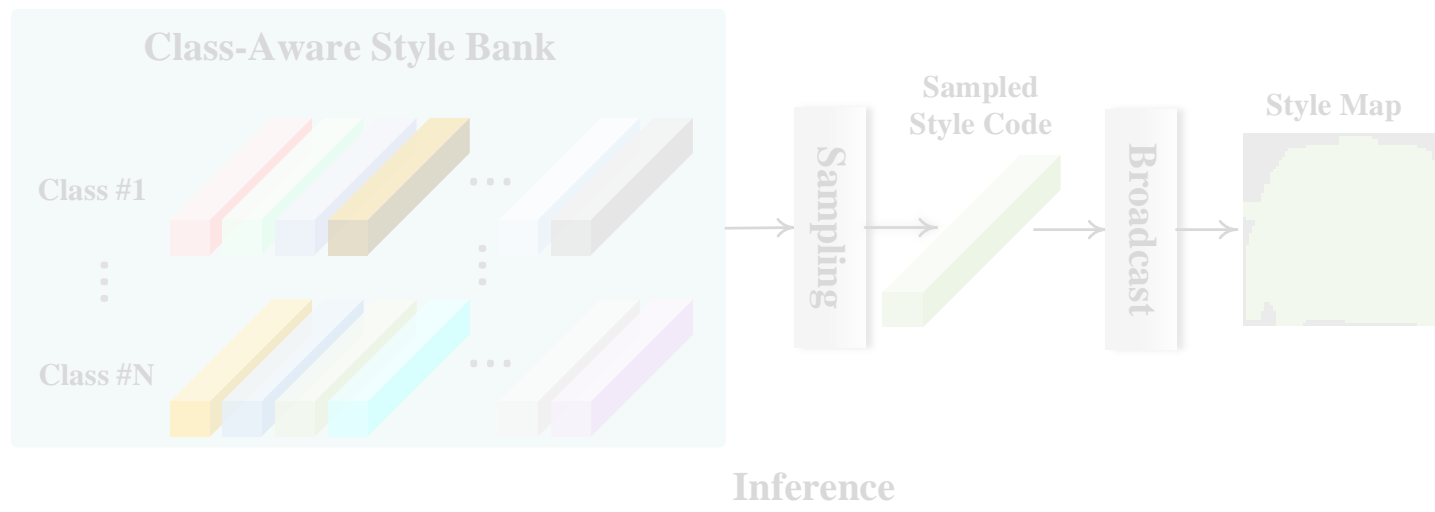
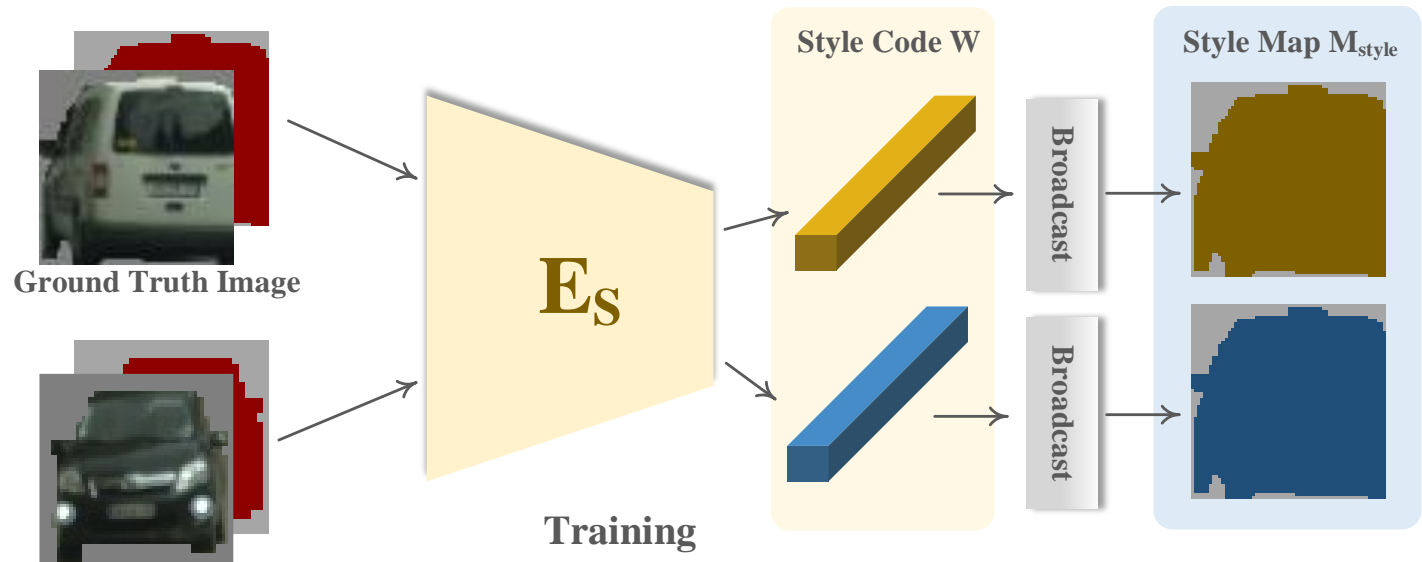
Background Generation: *Discriminator*



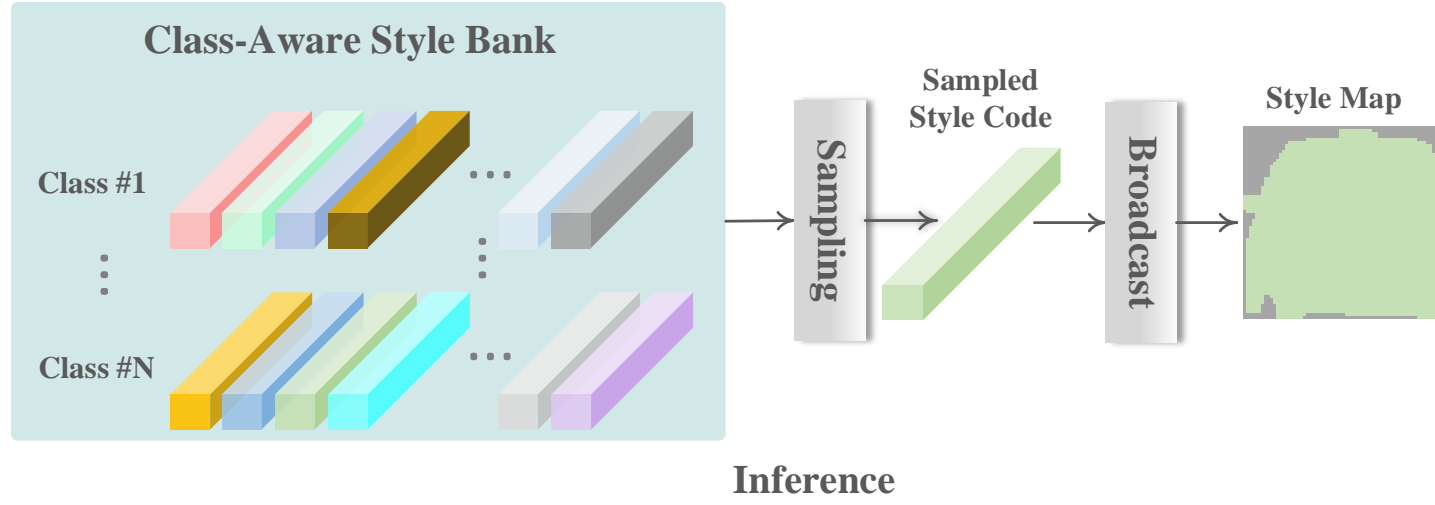
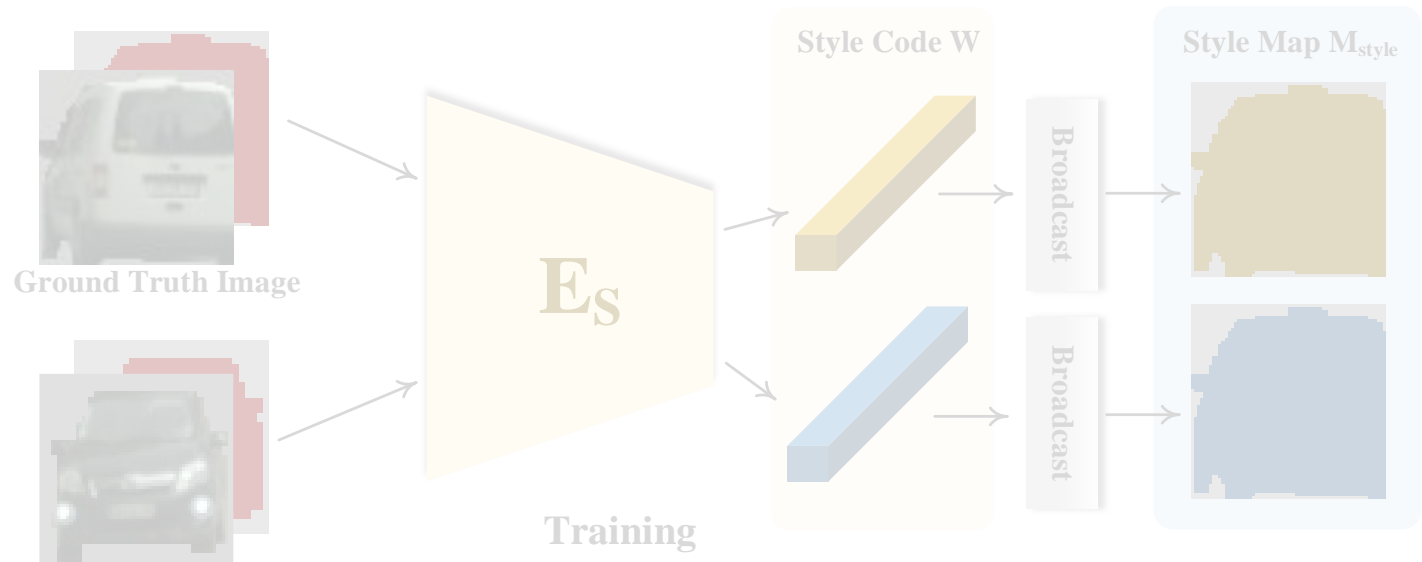
Object Generation



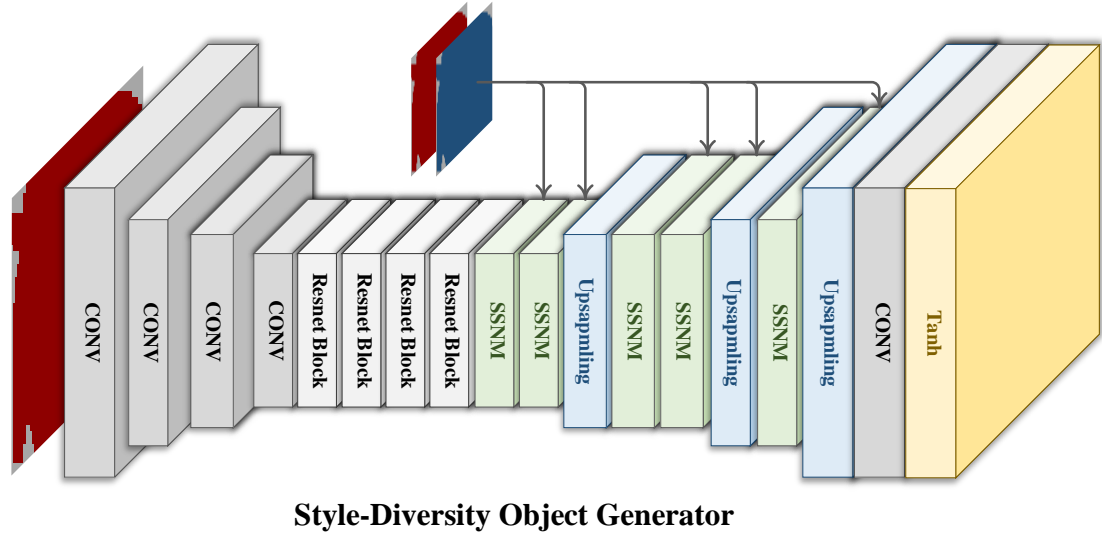
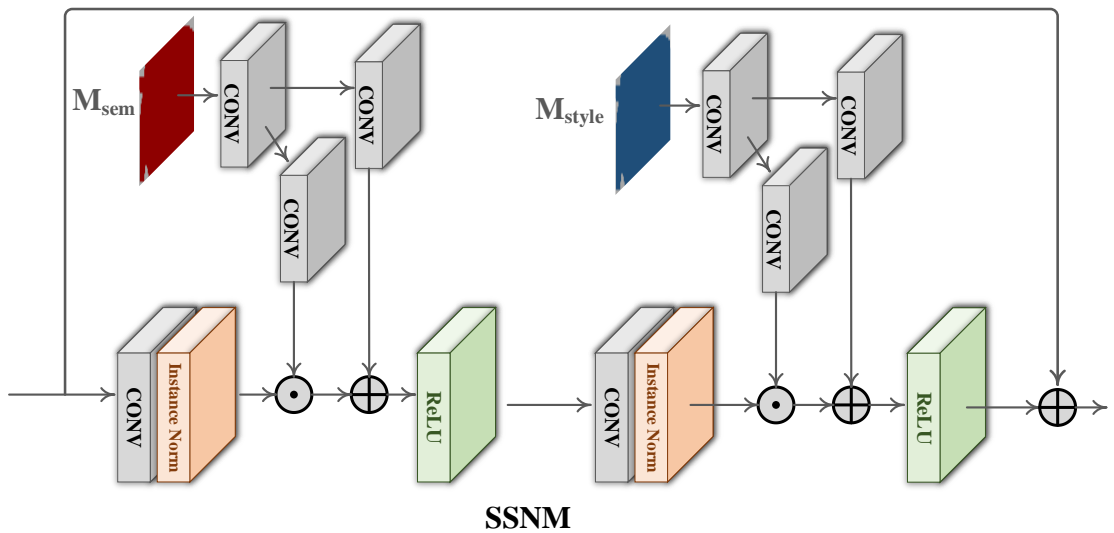
Object Generation: *Style-Diversity Object Generator*



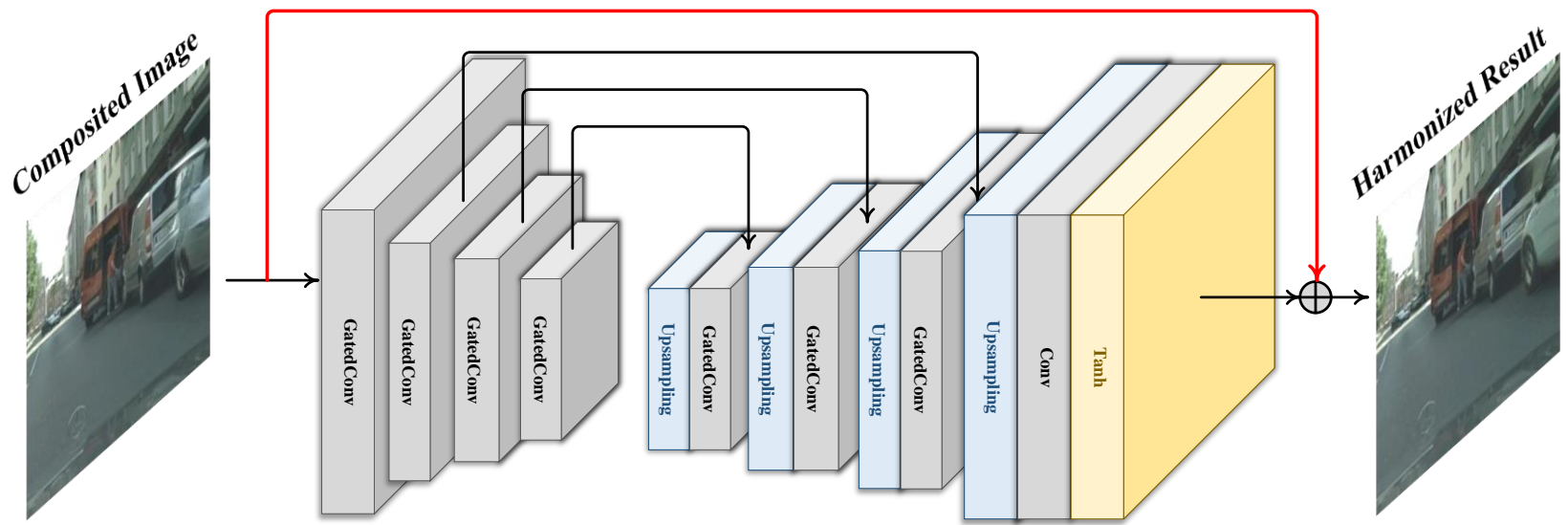
Object Generation: *Style-Diversity Object Generator*



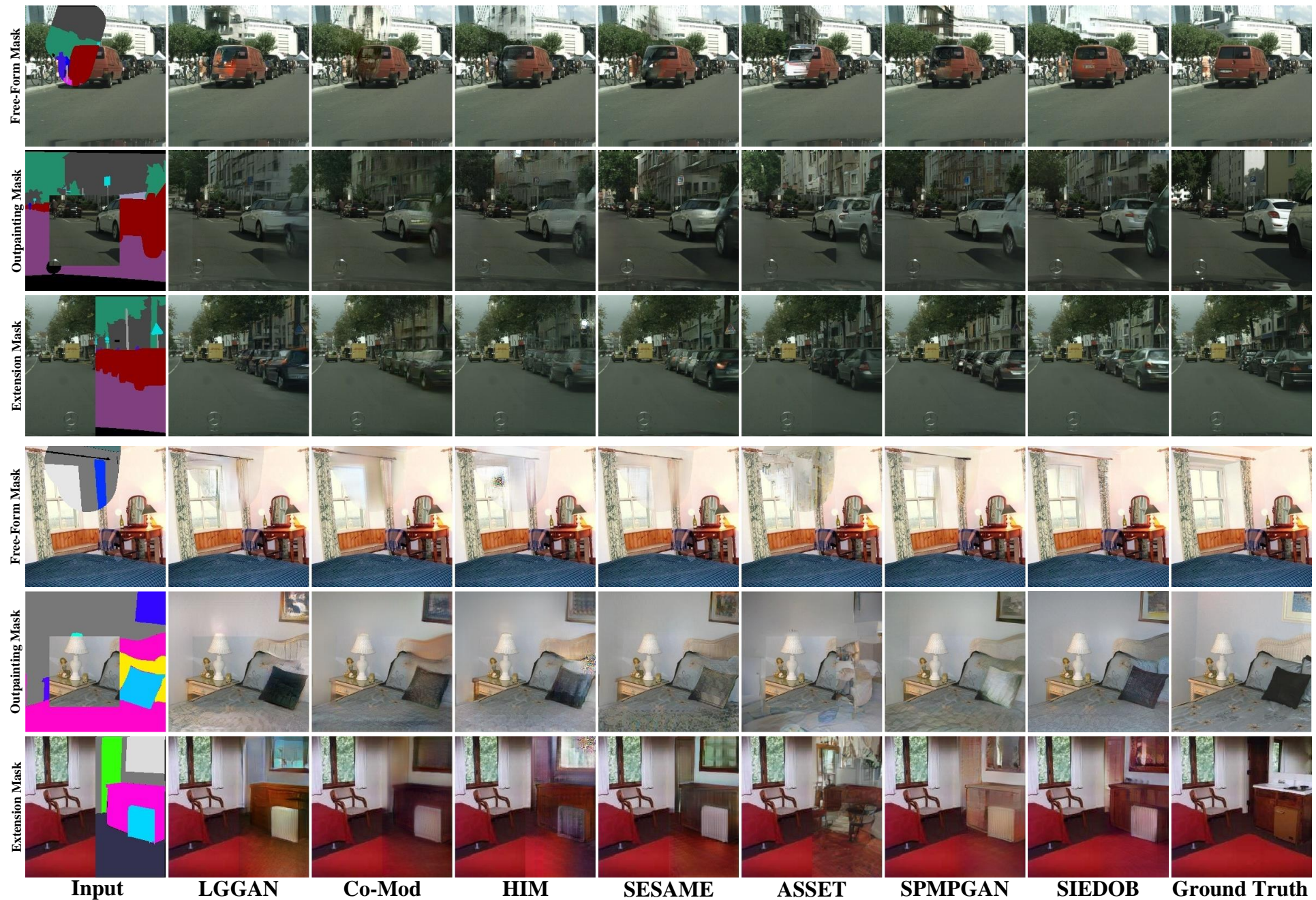
Object Generation: *Style-Diversity Object Generator*



Fusion Network



Result: Baselines vs SIEDOB



Result: Addition Object



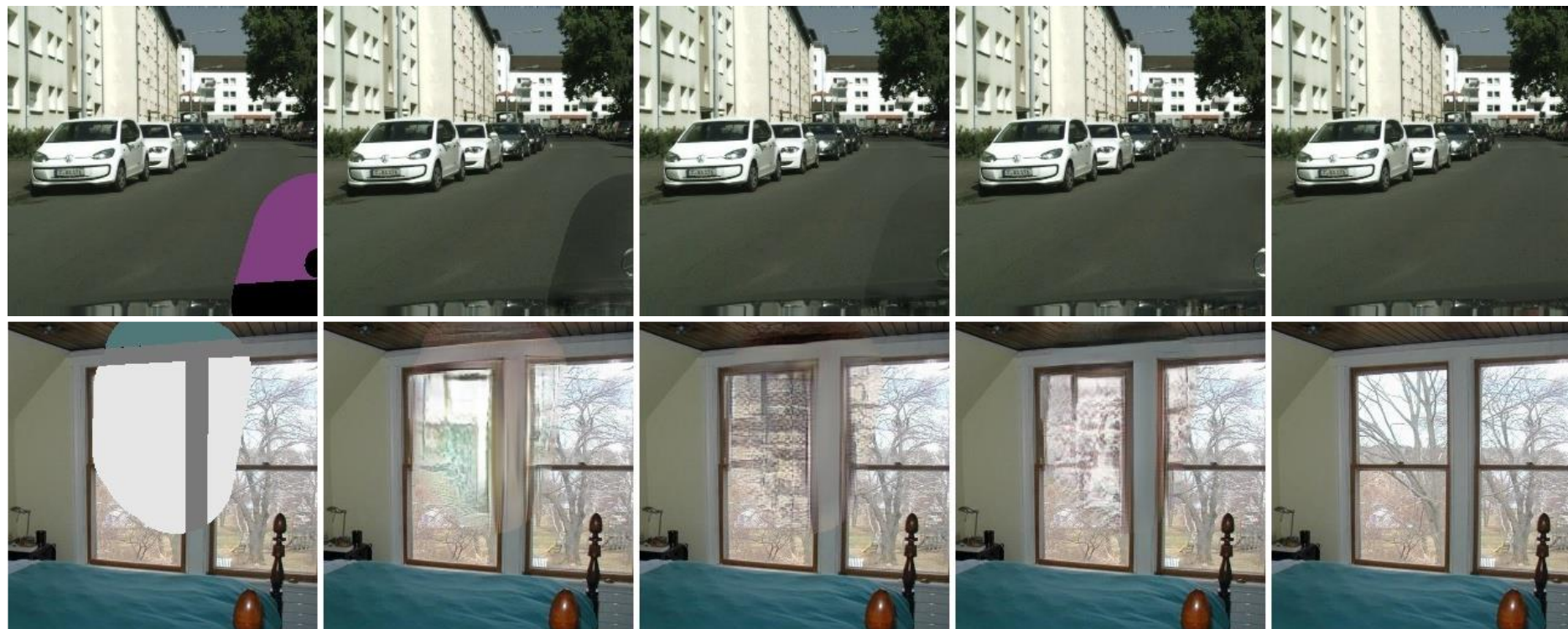
Input & Edit

Co-Mod

ASSET

SIEDOB

Ablation Study: *SASPM* and *Discriminator*



Input

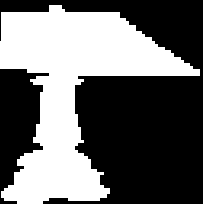
w/o SASPM

w/o D_{BAP}

Full model

Ground Truth

Ablation Study: *Style-Diversity Object Generator*



Object Mask



Object Mask

Style Image 1

$\alpha = 1.0$

$\alpha = 0.8$

$\alpha = 0.6$

$\alpha = 0.4$

$\alpha = 0.2$

$\alpha = 0.0$

Style Image 2

Ablation Study: *Style-Diversity Object Generator*

