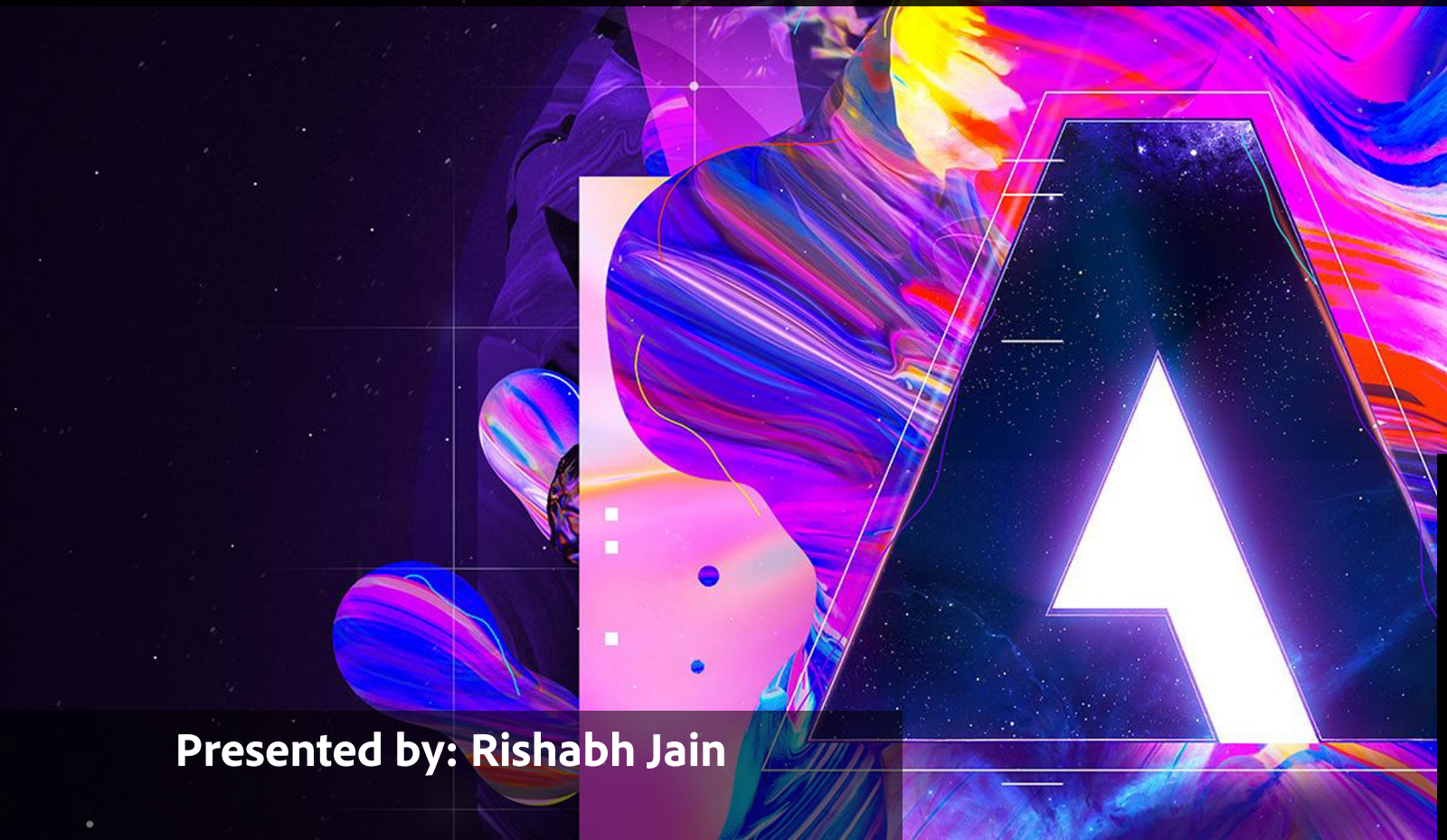
VGFlow: Visibility guided Flow Network for Human Reposing

THU-PM-046



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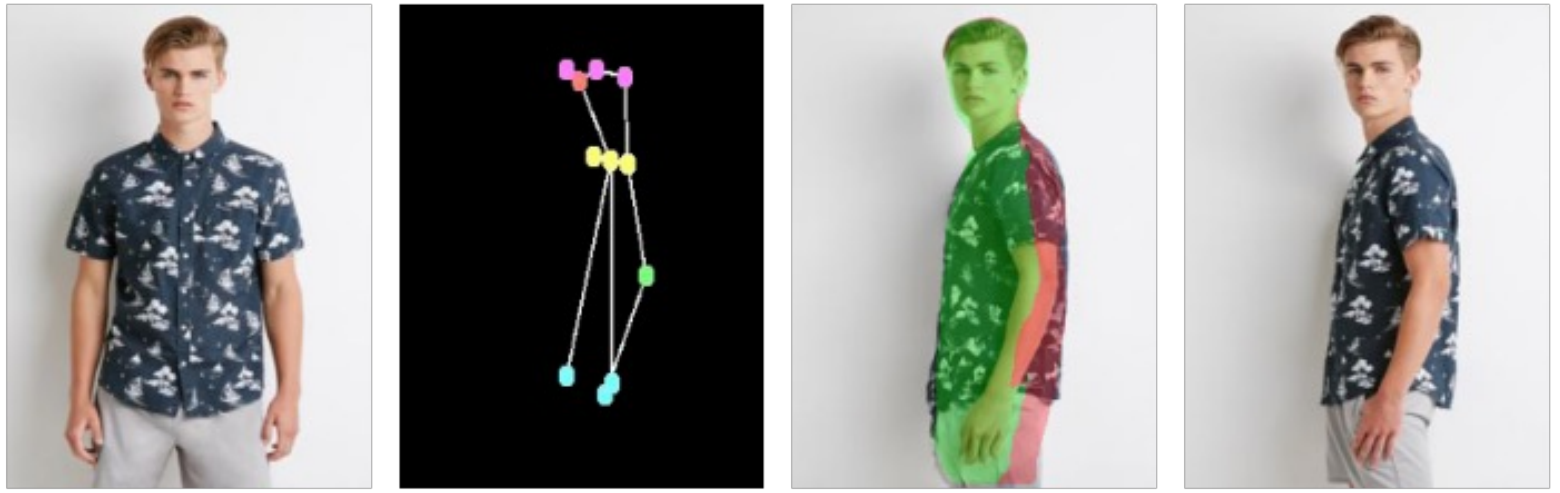
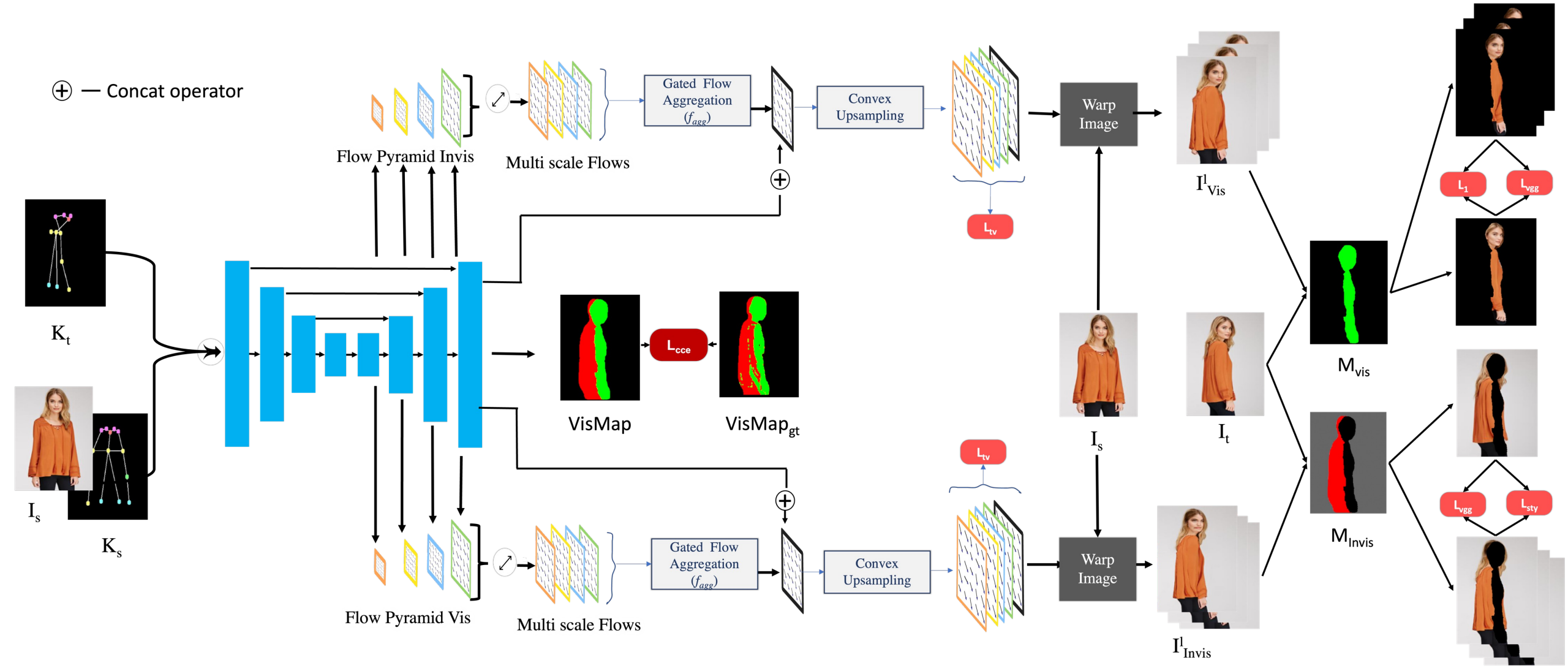
Source Img | Target Pose | I_{gen} | Ground Truth

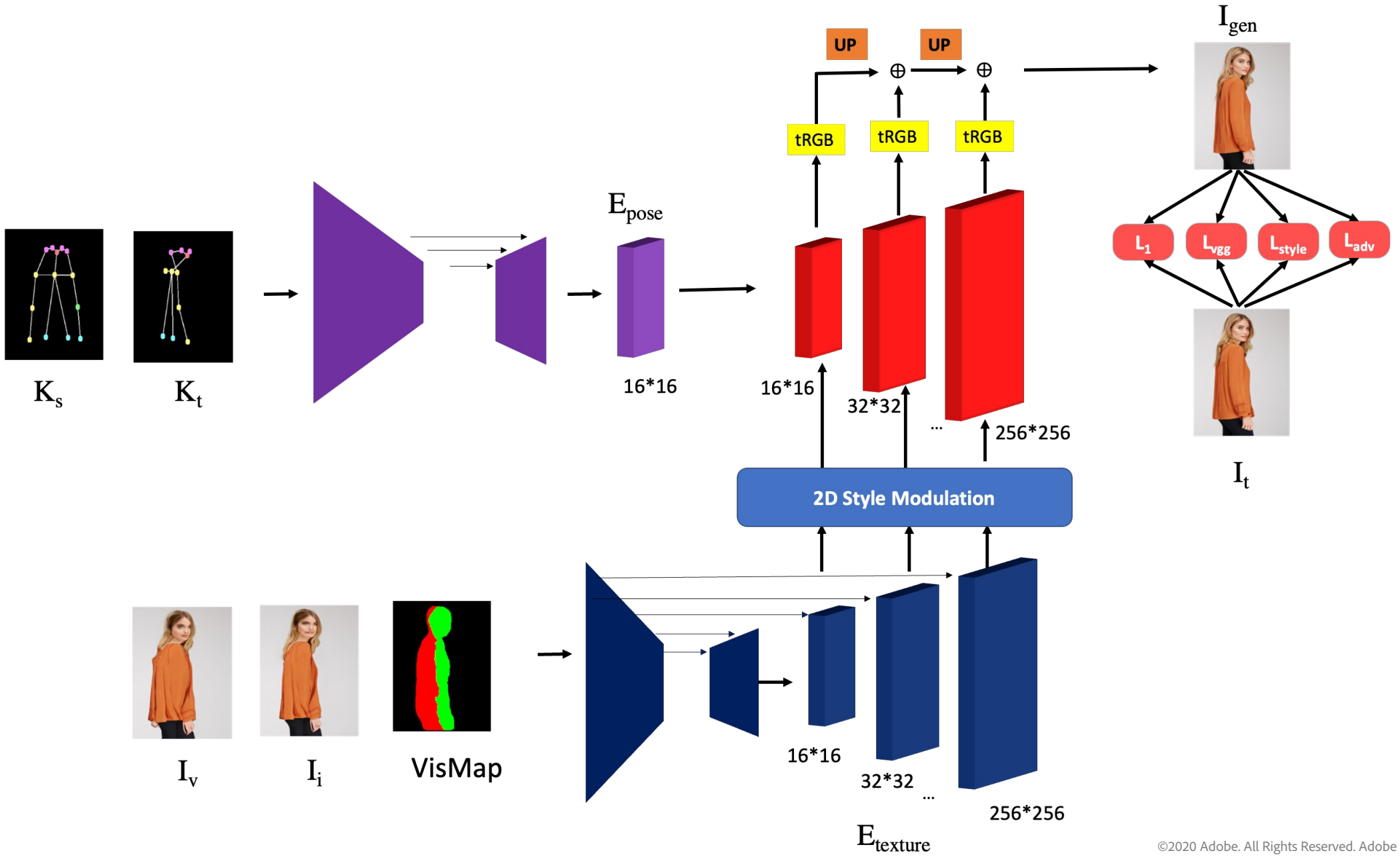


Human reposing involves changing the orientation of a source image to a desired target pose. To get accurate results, we learn to preserve the region visible (green) in the source image and transfer the appropriate style to the invisible region (red)

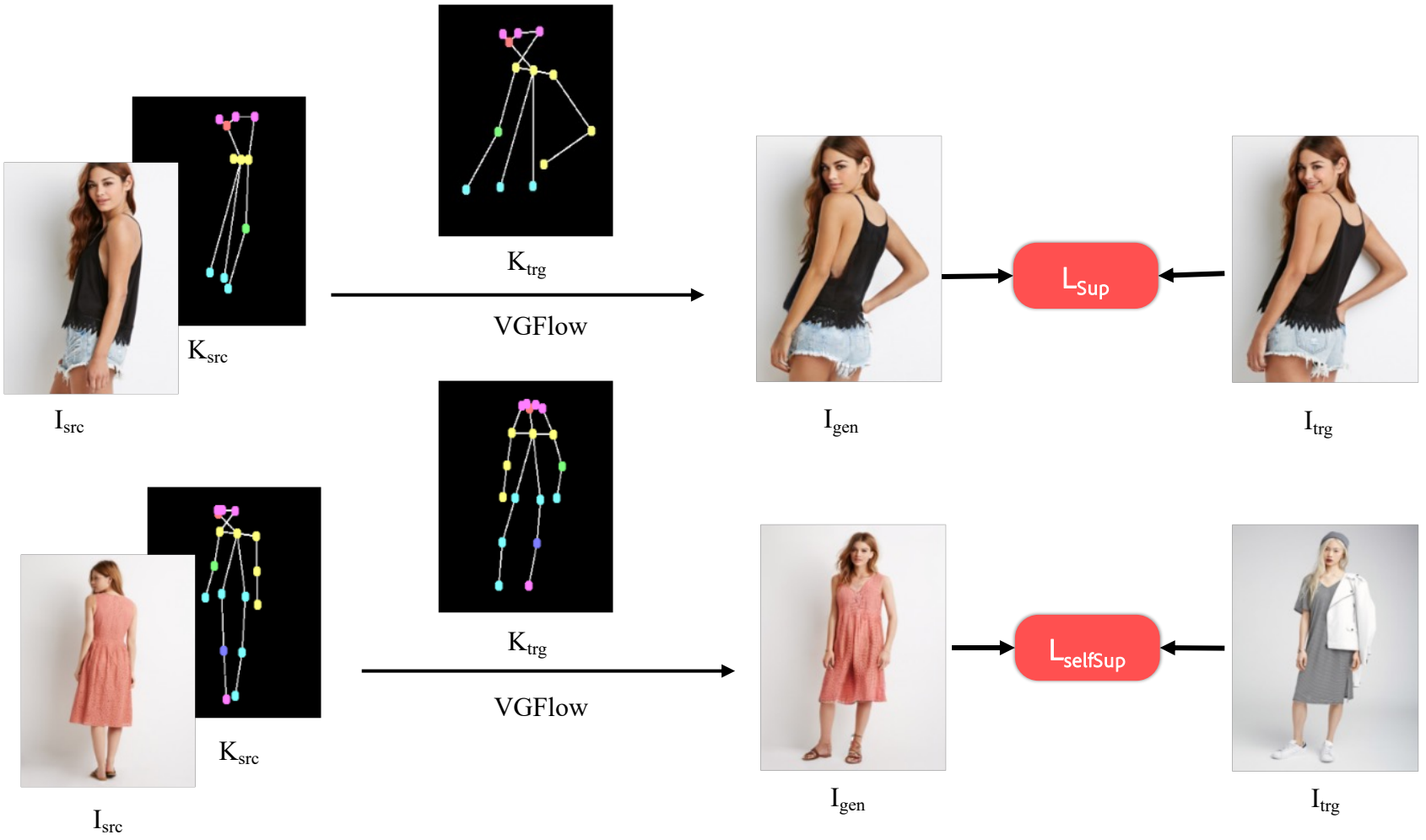
Visibility aware Flow module



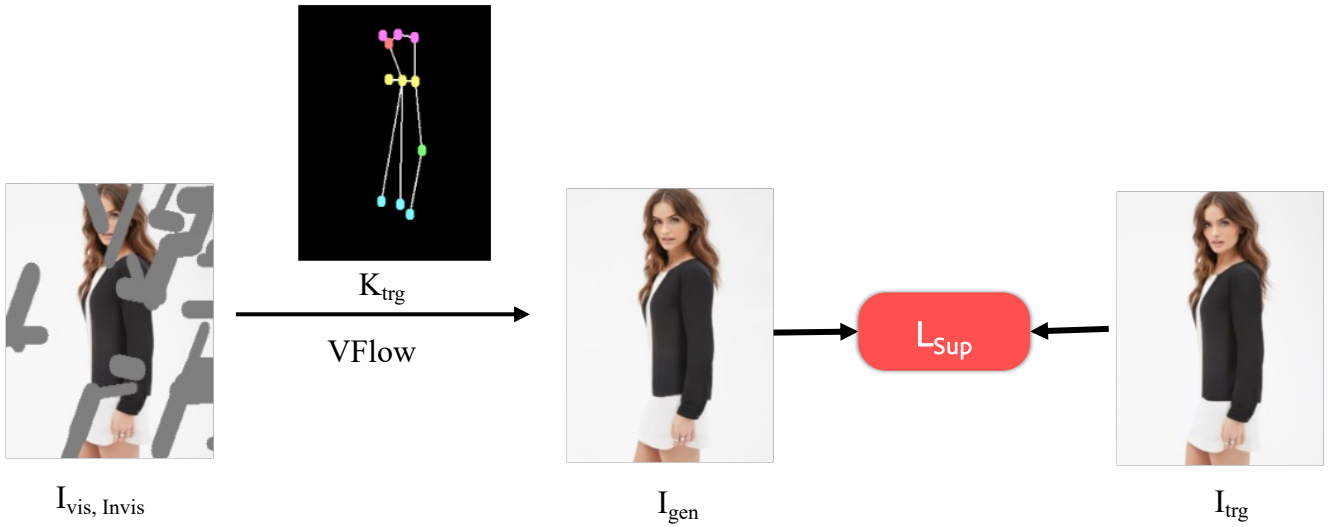
Generator Module



Self supervised learning – (50% finetuning intrabatch)



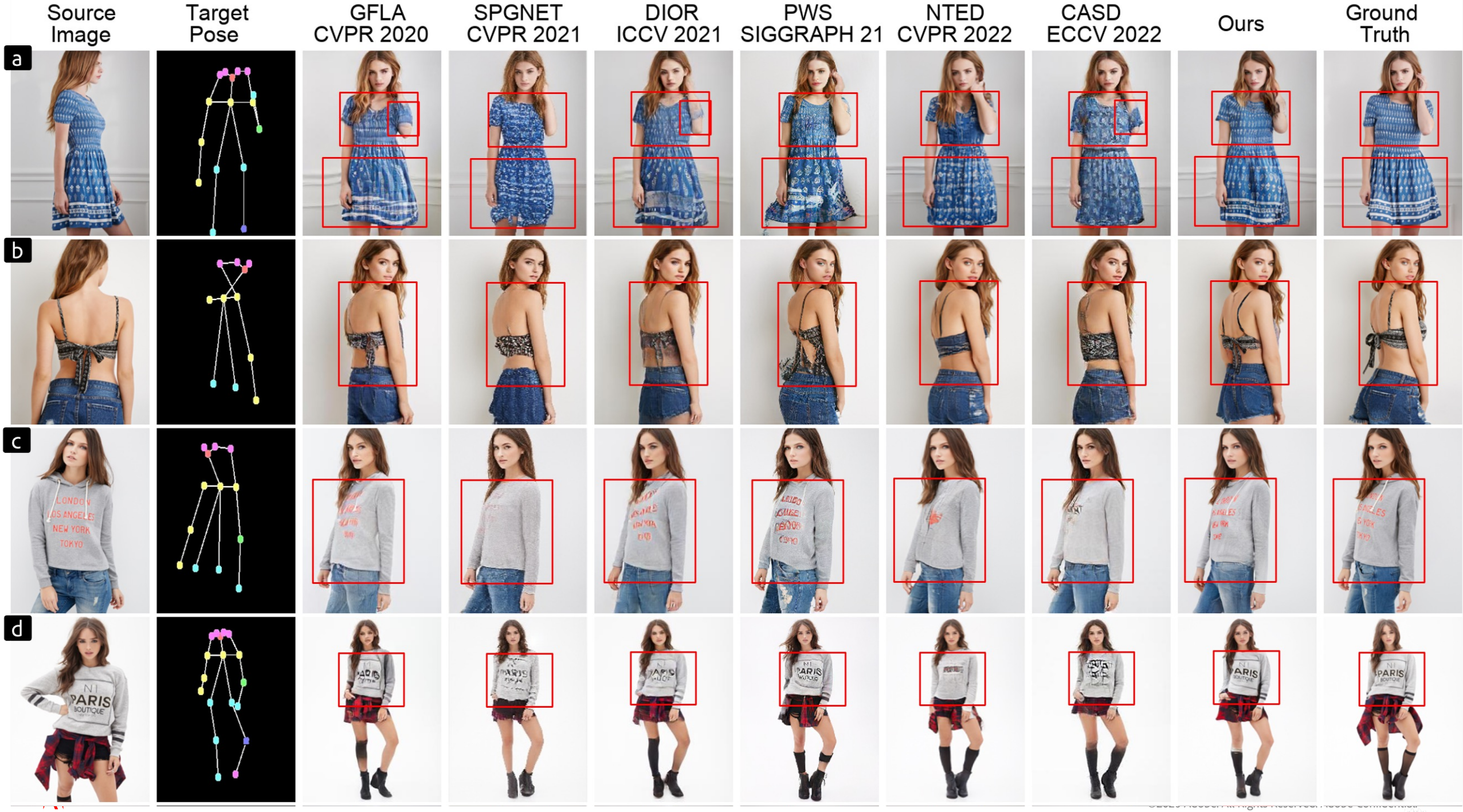
Inpainting – auxiliary task (20% of the time)



Quantitative reposing comparison

Method	SSIM ↑	FID ↓	LPIPS ↓
Intr-Flow [13]	-	16.31	0.213
GFLA [27]	0.713	10.57	0.234
ADGAN [23]	0.672	14.45	0.228
SPGNet [19]	0.677	12.24	0.210
Dior [5]	0.725	13.10	0.229
CASD [39]	0.724	11.37	0.193
Ours	**0.726**	**9.29**	**0.185**

Table 1. Our network outperforms all the previous baselines for quantitative image metrics at 256×256 resolution

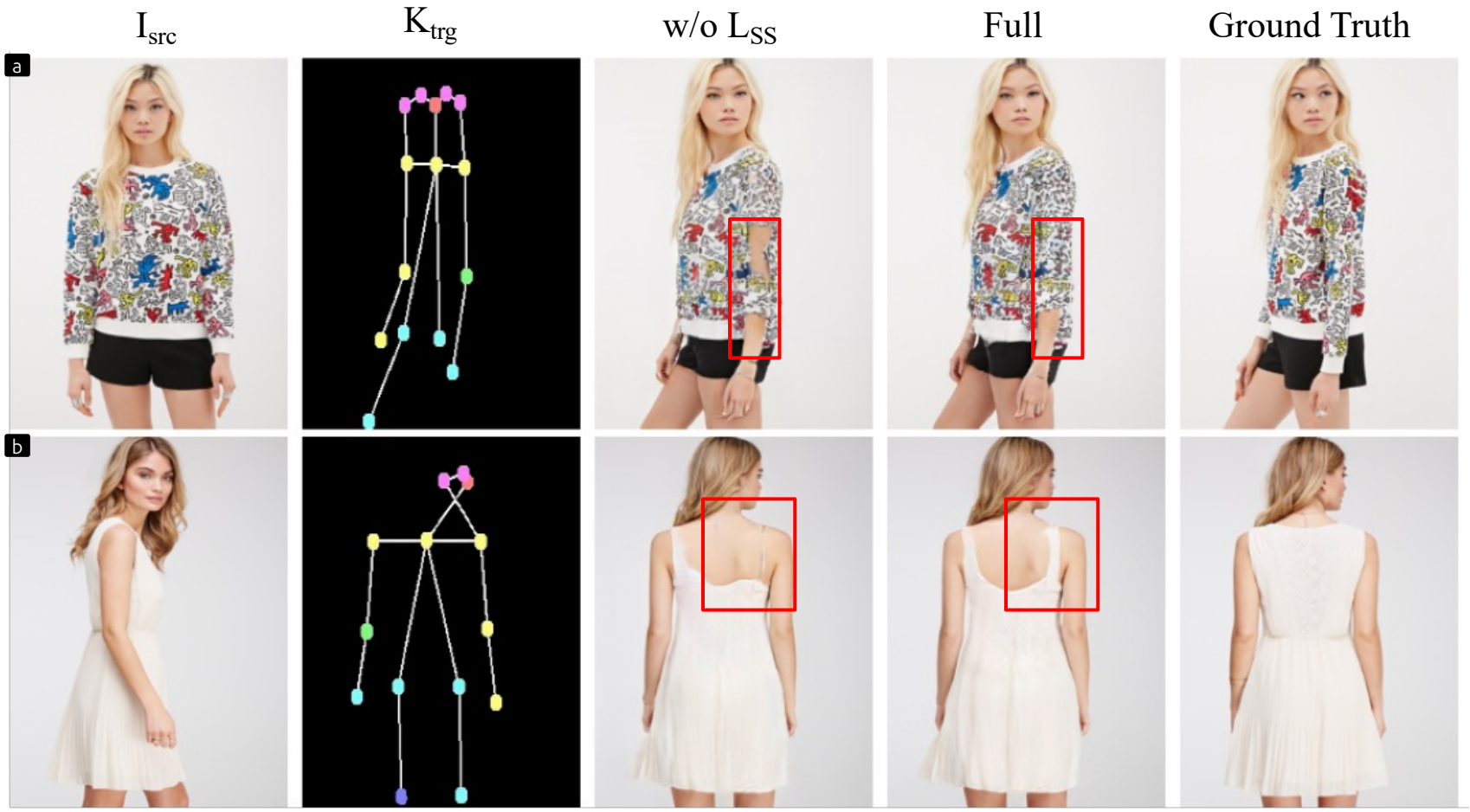

Source Image
Target Pose
GFLA CVPR 2020
SPGNET CVPR 2021
DIOR ICCV 2021
PWS SIGGRAPH 21
NTED CVPR 2022
CASD ECCV 2022
Ours
Ground Truth
a
b
c
d

Ablation Studies

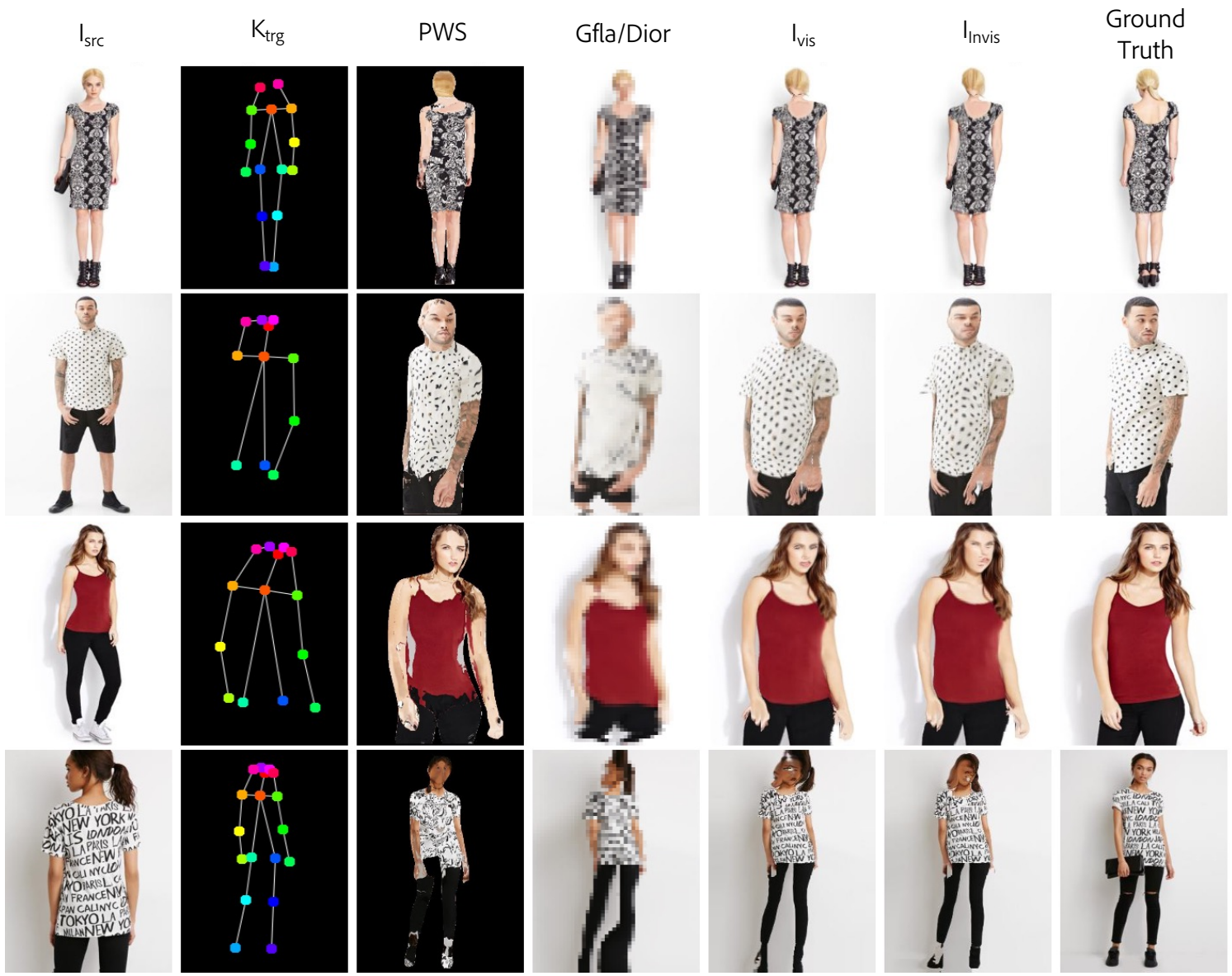
Method	SSIM ↑	FID ↓	LPIPS ↓
w/o VisMap, I_i, L_{SS}	0.719	9.89	0.196
w/o I_i, L_{SS}	0.724	9.93	0.190
w/o K_s, L_{SS}	0.726	9.90	0.186
w/o L_{SS}	0.725	9.70	0.186
Full	**0.726**	**9.29**	**0.185**

Table 2. We perform extensive ablations to gauge the importance of each component in our network

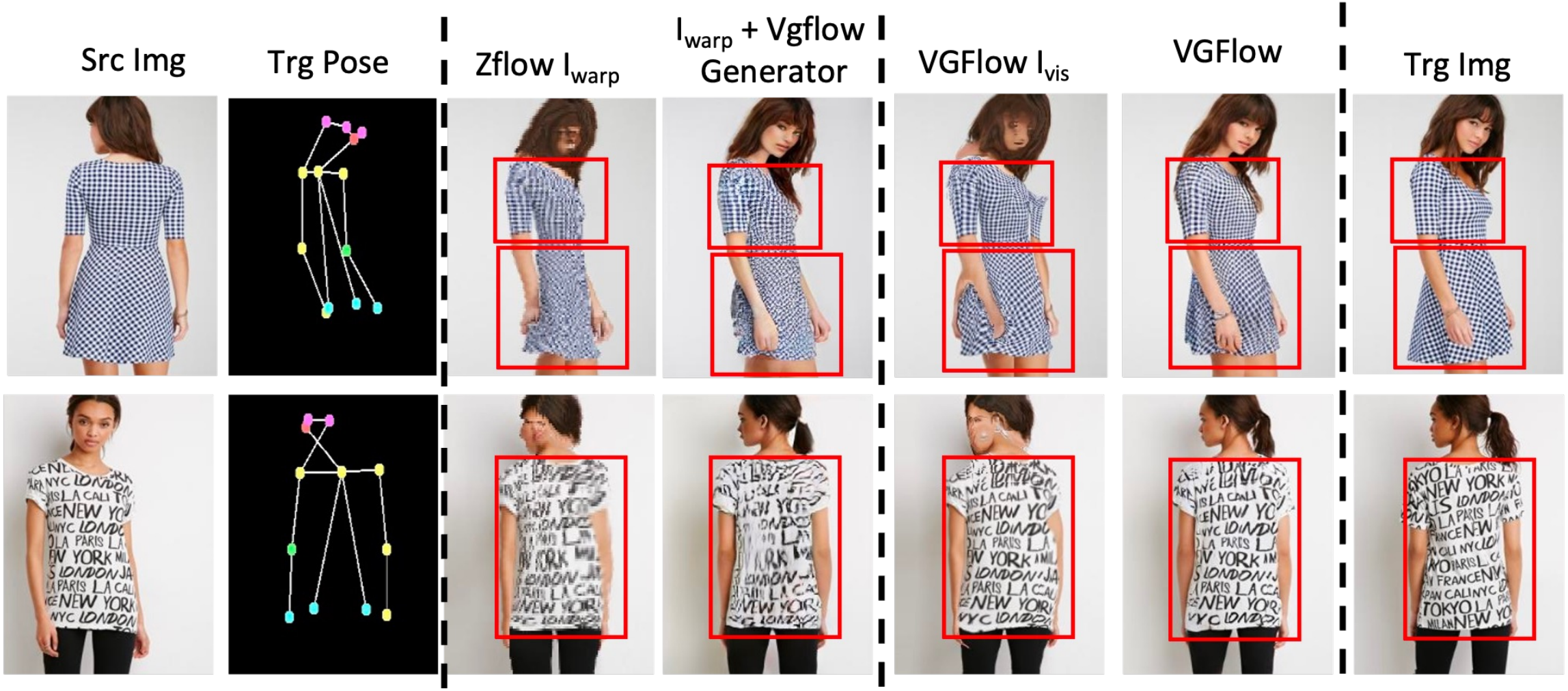
Qualitative results for self supervised loss Ablation



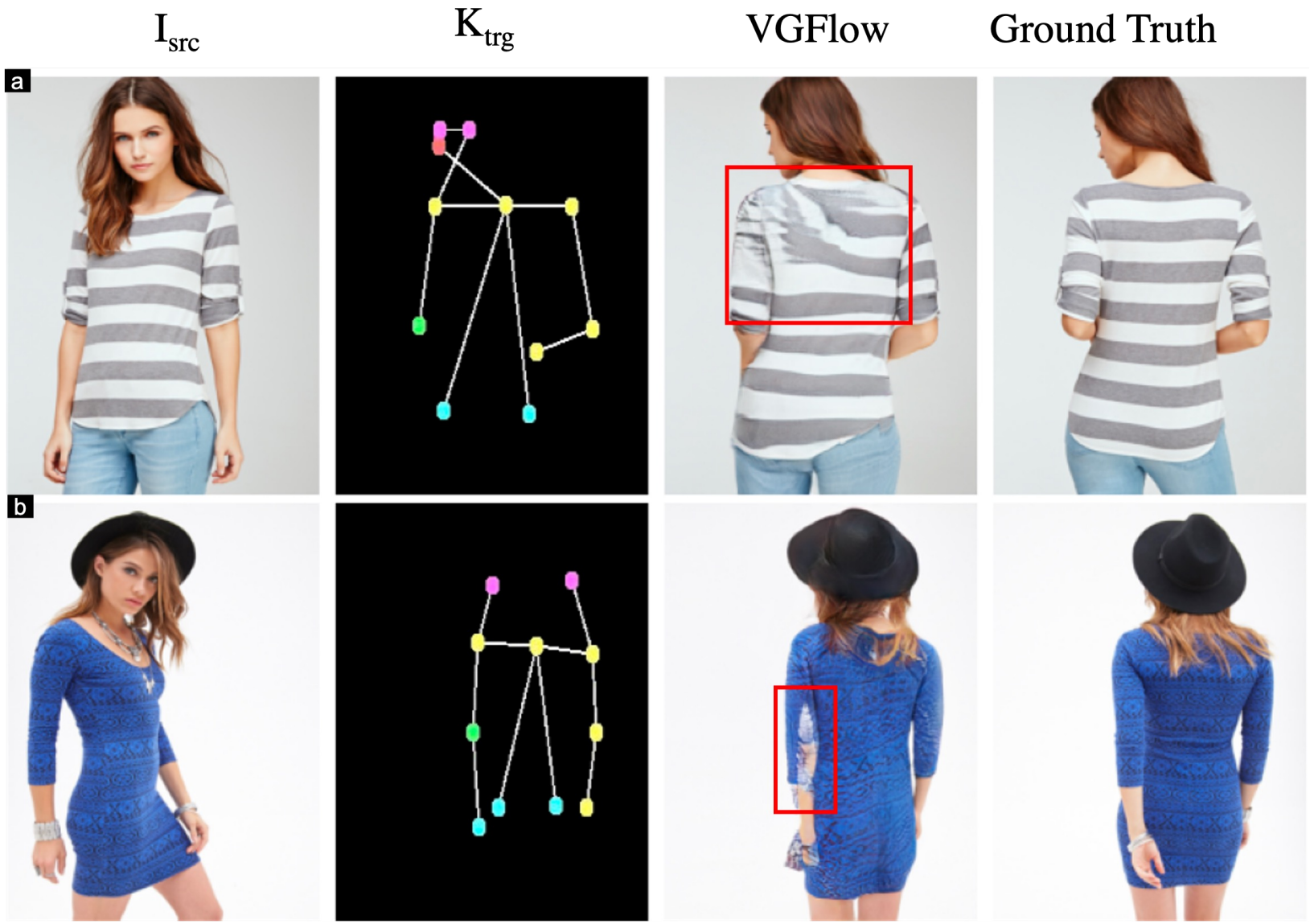
Warp function comparison



Flow estimation improvement via VGFLow



Limitations and Failures




Adobe