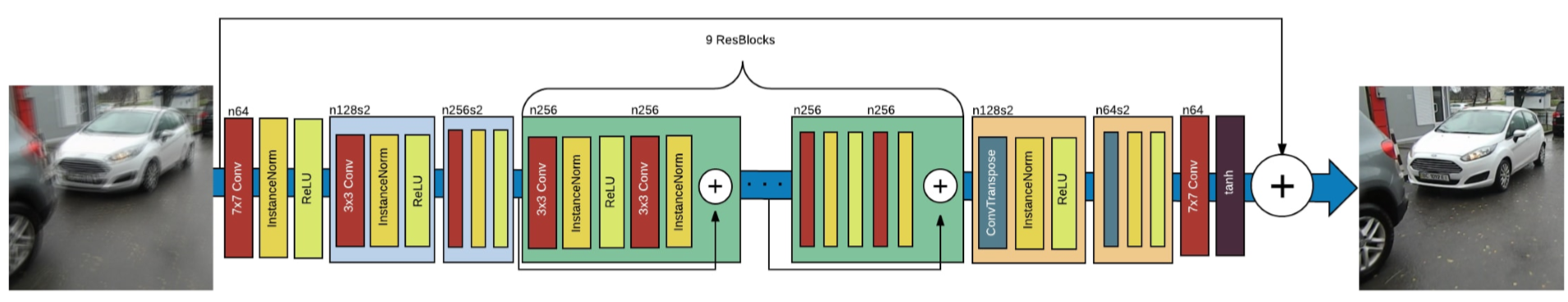
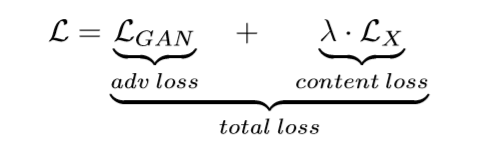
1. **DeblurGAN**

**1.1 DeblueGAN-v1**

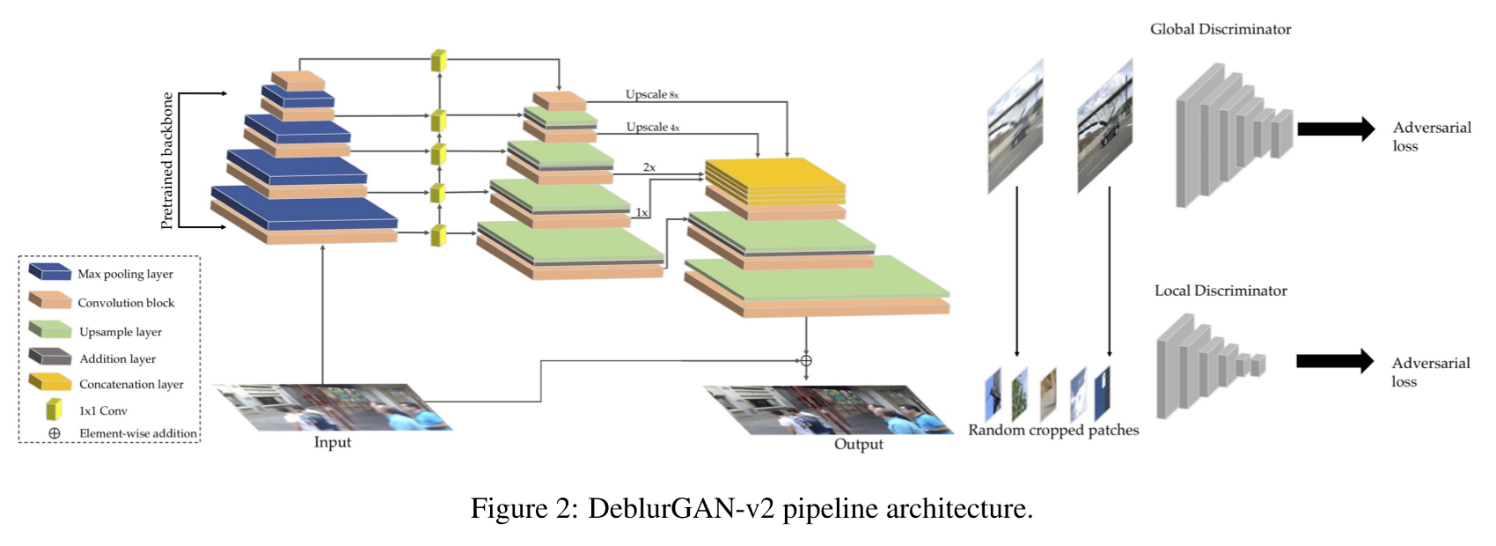
**Network architecture**



**Loss**



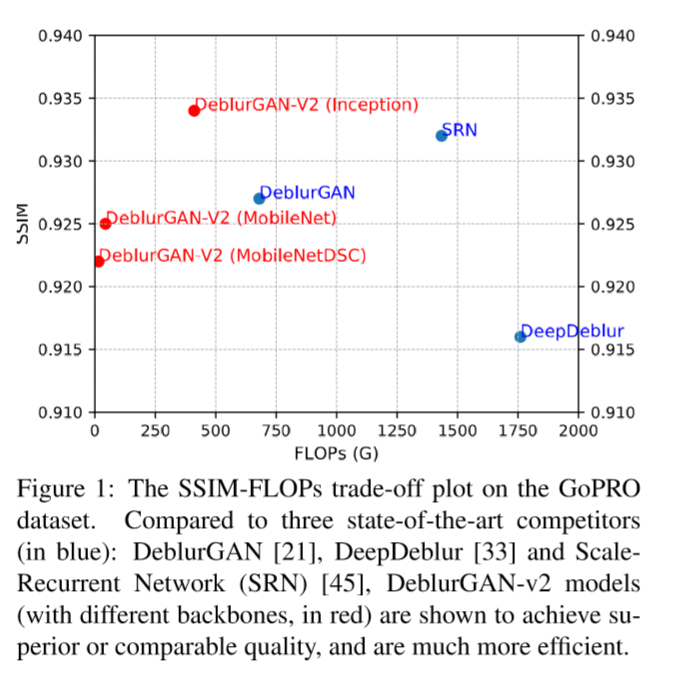
1. **2 DeblueGAN-v2**



**deblurGAN-v2 Architecture**

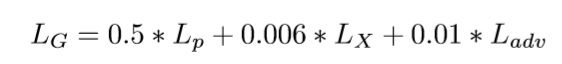
1. Feature Pyramid Network(FPN)
2. Choice of Backbone: Trade-off between Performance and Efficiency

Inception\_ResNet-v2, MobileNet-v2, MobileNet-DSC



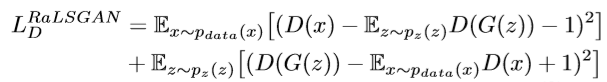
1. Double-Scale RaGAN-LS Discriminator, contains both global and local discriminator losses

**Loss**



Double-Scale RaGAN-LS Discriminator, contains both global and local discriminator losses

RaGAN-LS:

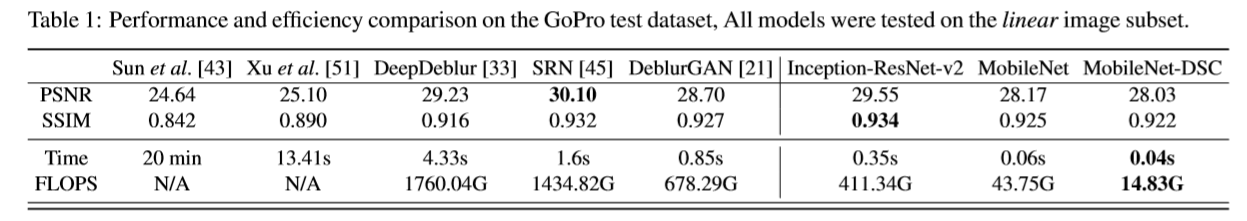


Lp is pixel\_space loss, e.g the simplest L1 or L2 distance, using Lp tends to yield oversmoothened pixel-space outputs

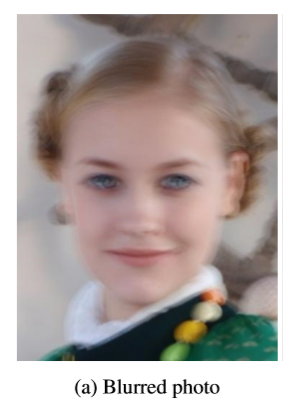
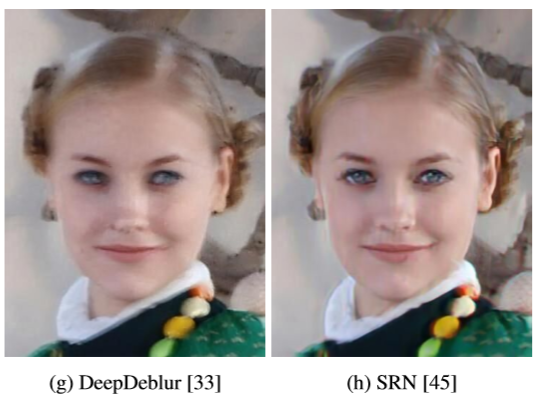
Lx is content loss, use perceptual distance, it computes the Euclidean loss on the VGG19 conv3\_3 feature maps

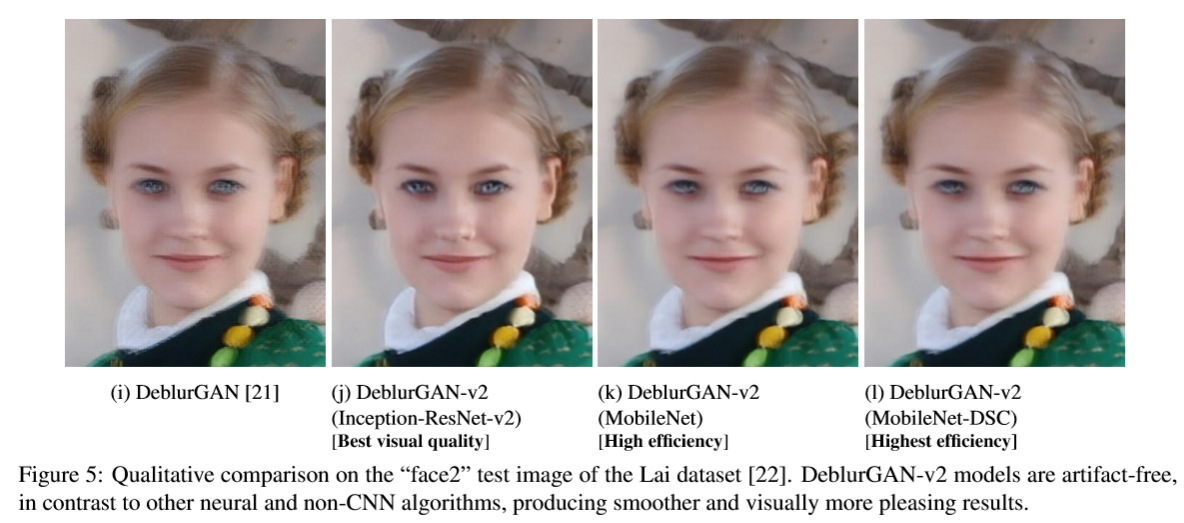
**Experiment**

Dataset: Gopro, Kohler



DeblurGAN-v2对比DeblurGAN-v1: 去模糊效果更好，PSNR、SSIM指标更好，模型结构更轻量，运行速度更快，视觉效果更好，图形边缘更清晰、平滑，没有棋盘效应，



SRN有伪影（ghost artifacts）, DeblurGAN-v2更加平滑（smoother）, 使用Inception-ResNet-v2达到了最佳视觉

**1.3 some problem**

(1) 棋盘效应

https://distill.pub/2016/deconv-checkerboard/

用resize convolution 代替 deconvolution

(2) 伪影（ghost artifacts）

回传剃度 可以控制伪影；如果有清晰图像 可以用perceptual loss 非常有效的控制伪影；采用upsample 而不是transpose同样有一些帮助

(3) 梯度损失

(4) 特征金字塔（Feature Pyramid Network）