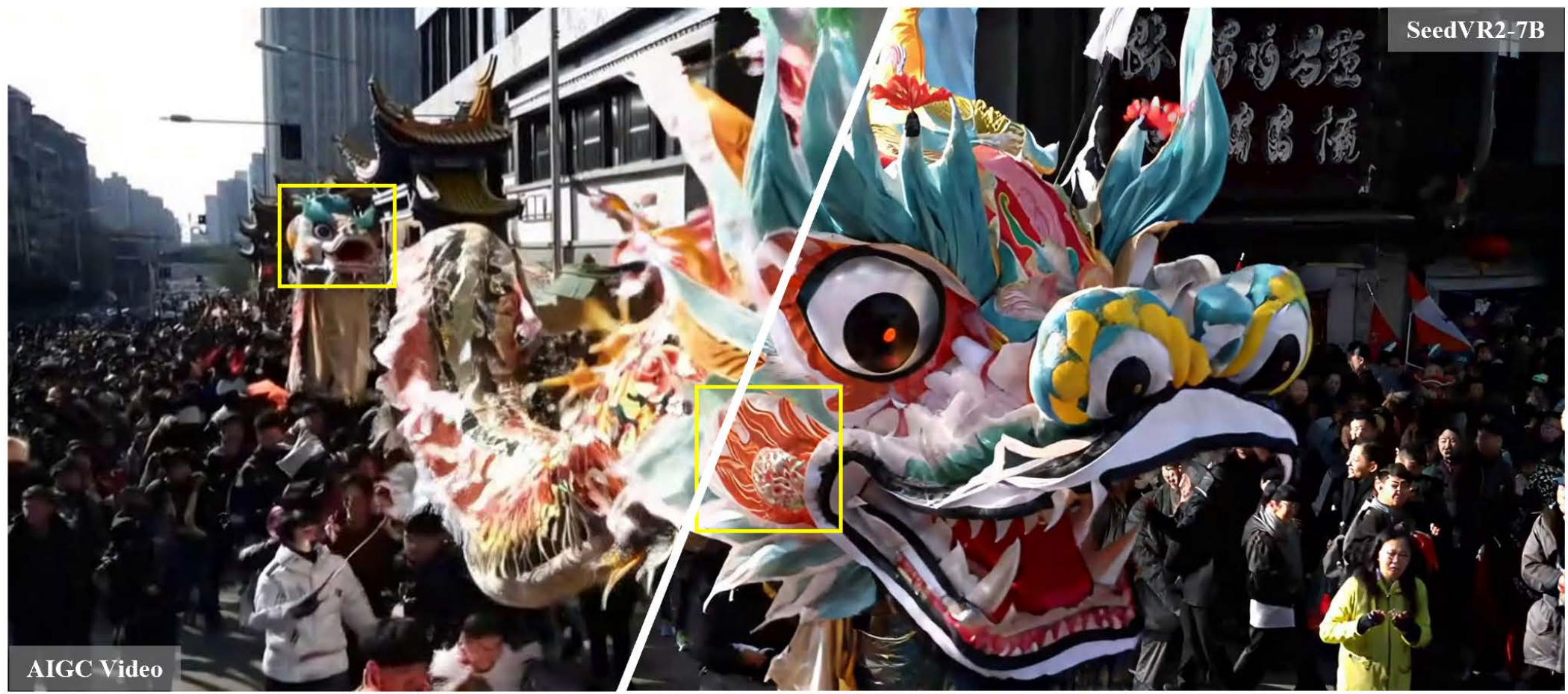


SeedVR2

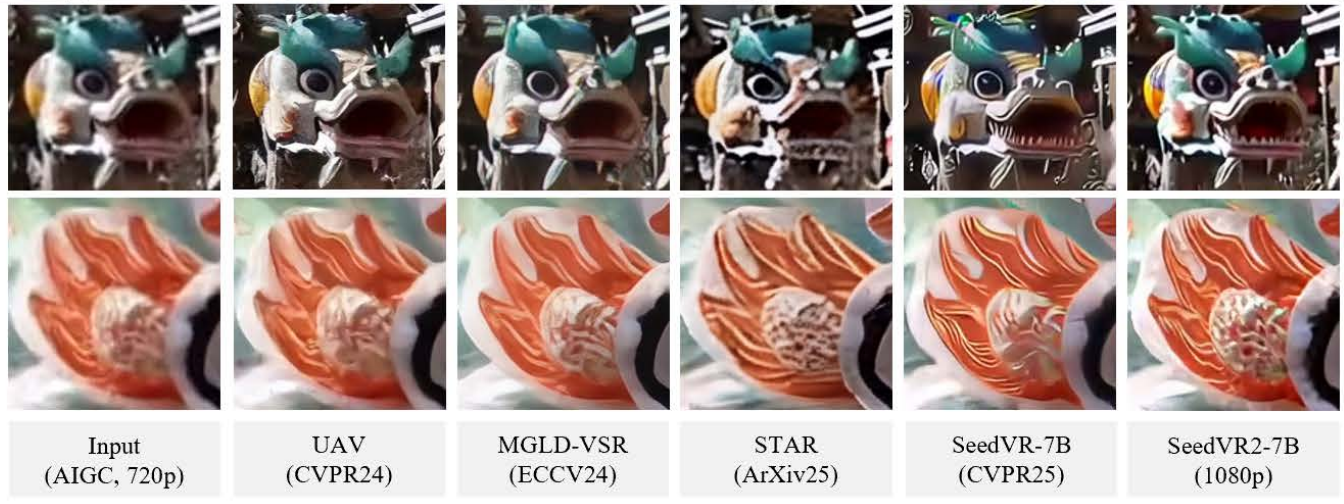
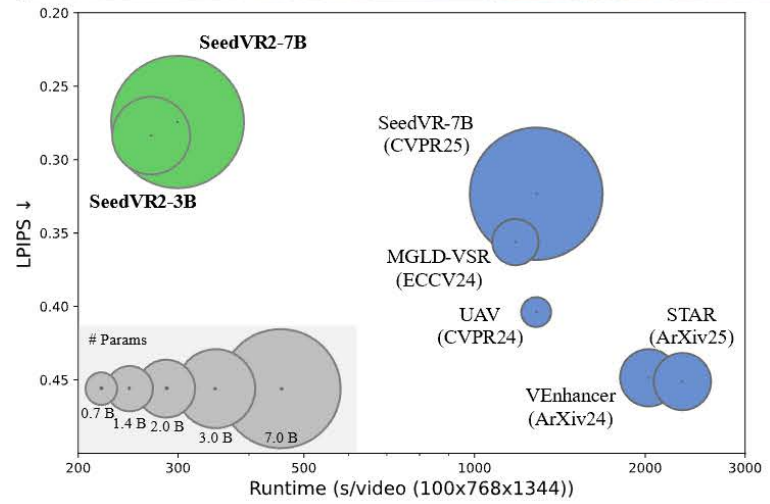
One-Step Video Restoration Via Diffusion Adversarial Post-Training

Jianyi Wang^{1,2}, Shanchuan Lin², Zhijie Lin², Yuxi Ren², Meng Wei²,
Zongsheng Yue¹, Shangchen Zhou¹, Hao Chen², Yang Zhao², Ceyuan Yang²,
Xuefeng Xiao², Chen Change Loy¹, Lu Jiang²

¹S-Lab, Nanyang Technological University, Singapore ²Bytedance Seed

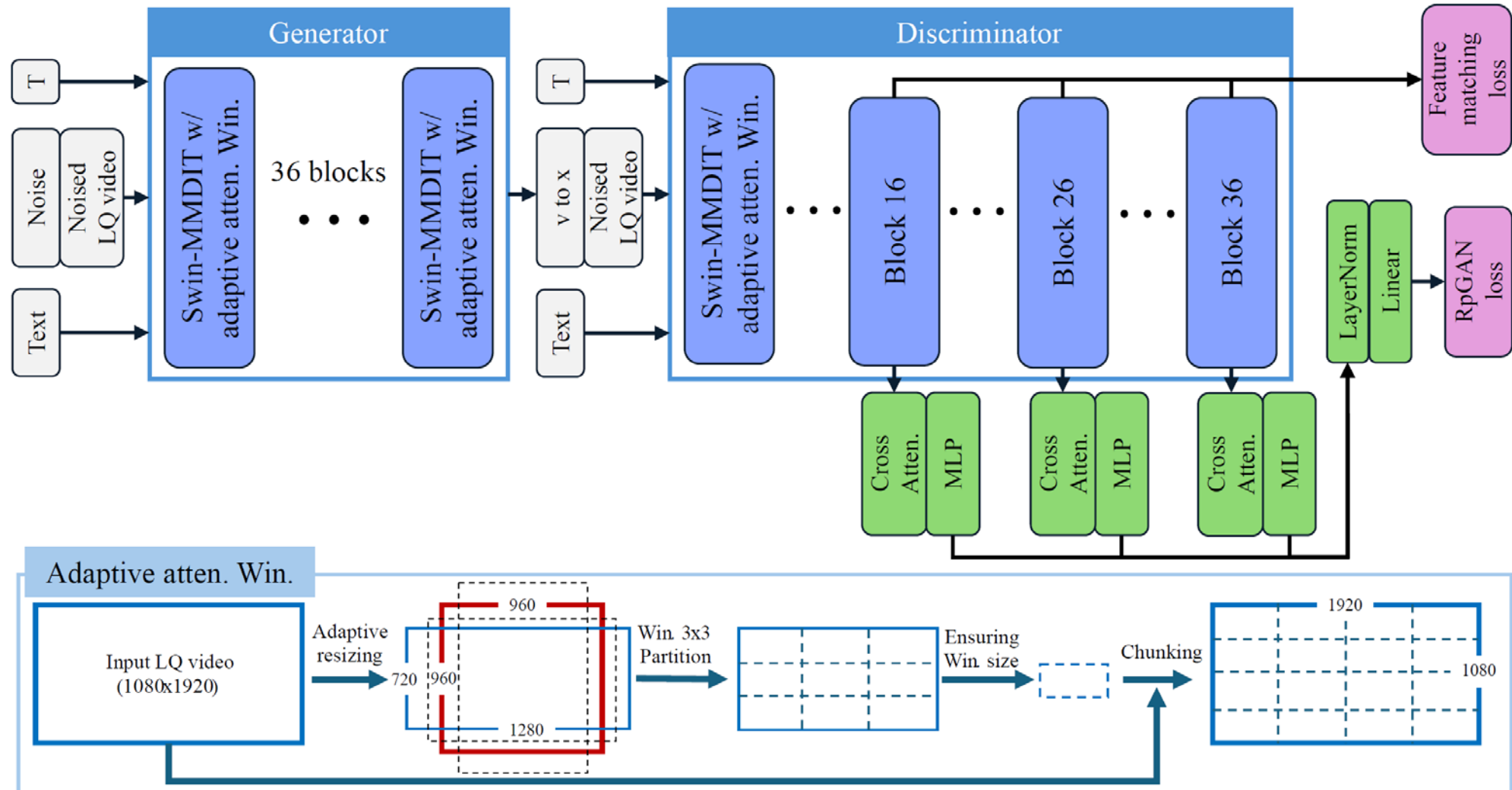


AIGC Video



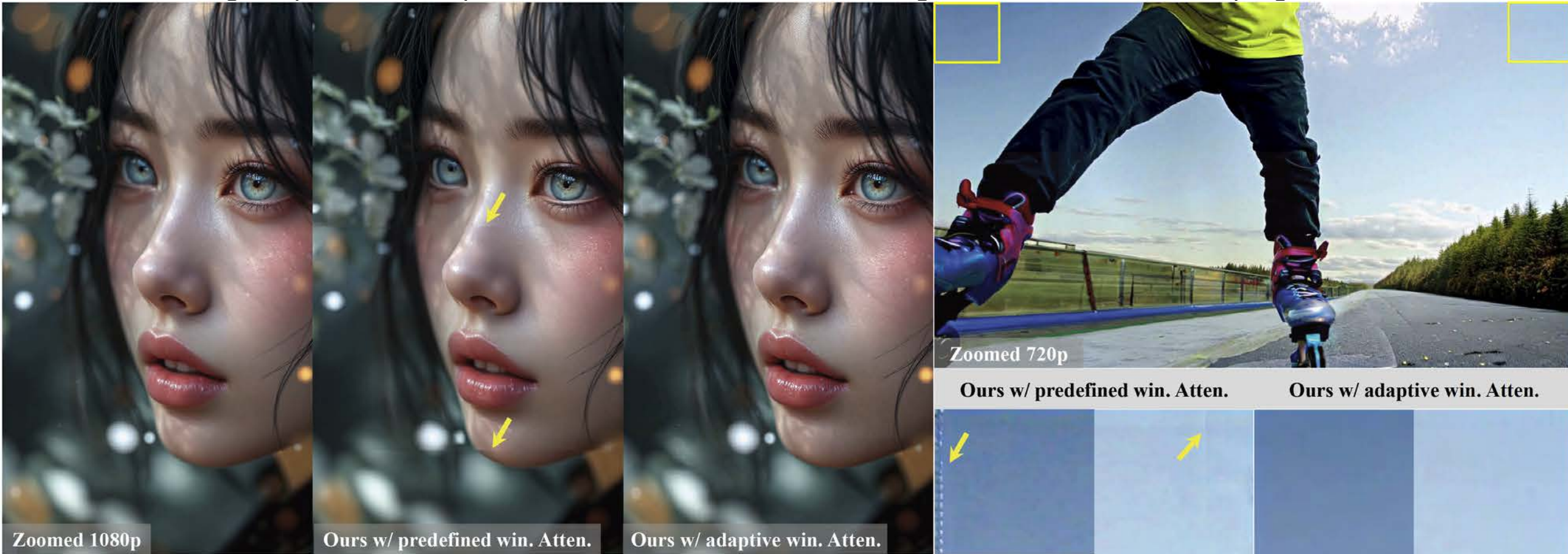
Diffusion Adversarial Post Training Towards Restoration

- Effective adaptive window attention mechanism, enabling efficient high-resolution restoration in a single forward step



Diffusion Adversarial Post Training Towards Restoration

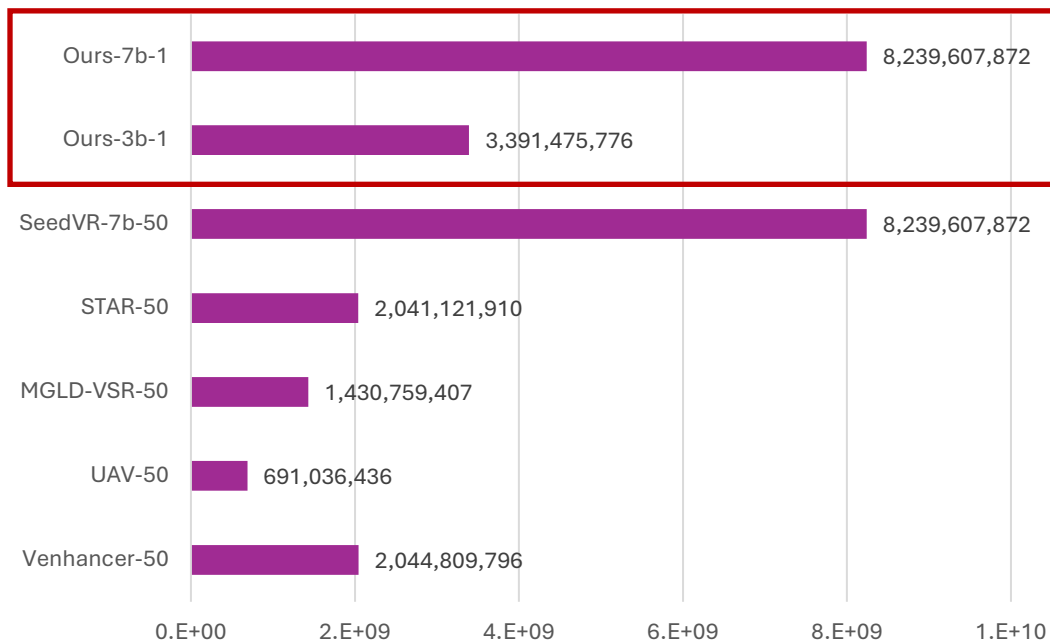
- Effective adaptive window attention mechanism, enabling efficient high-resolution restoration in a single forward step
- Effective design improvements specific to video restoration, focusing on the loss function and progressive distillation



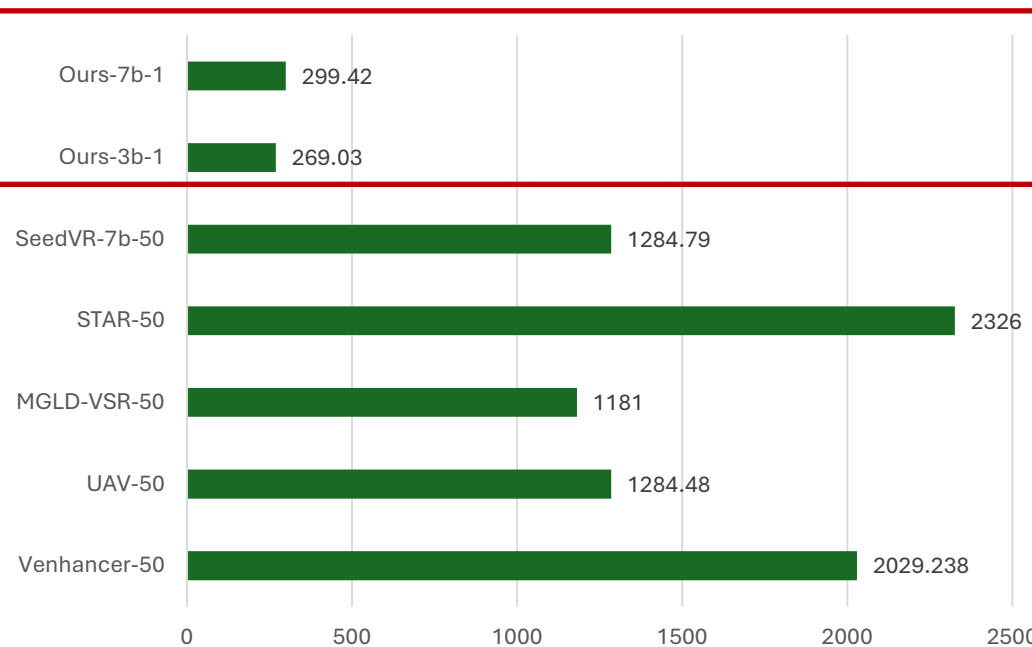
Metrics	Non-satu. + R1	RpGAN + R1 + R2	RpGAN + R1 + R2 + L1	RpGAN + R1 + R2 + L1 + LF	Prog. Training
PSNR \uparrow	22.55	22.56	22.91	22.91	23.96
SSIM \uparrow	0.612	0.603	0.616	0.620	0.667
LPIPS \downarrow	0.310	0.278	0.251	0.244	0.227
DISTS \downarrow	0.136	0.109	0.099	0.092	0.097

One-step Large Diffusion Transformer with High Efficiency

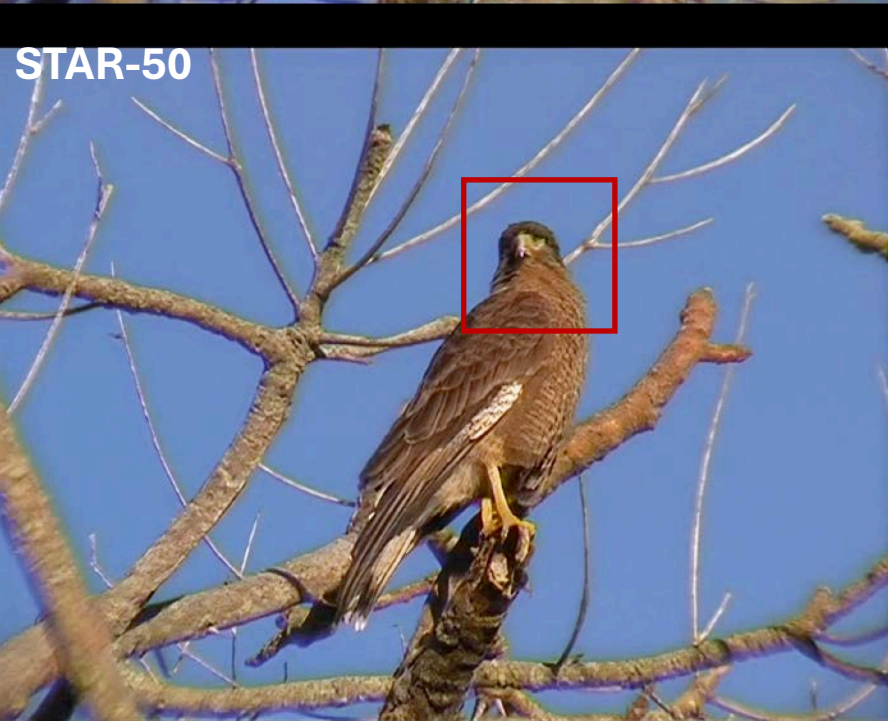
Model Size (Generator Only)

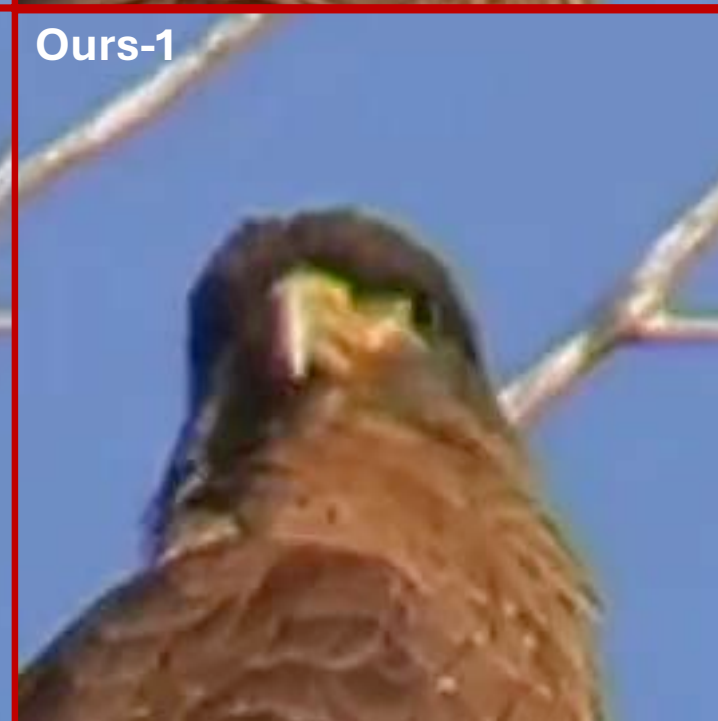
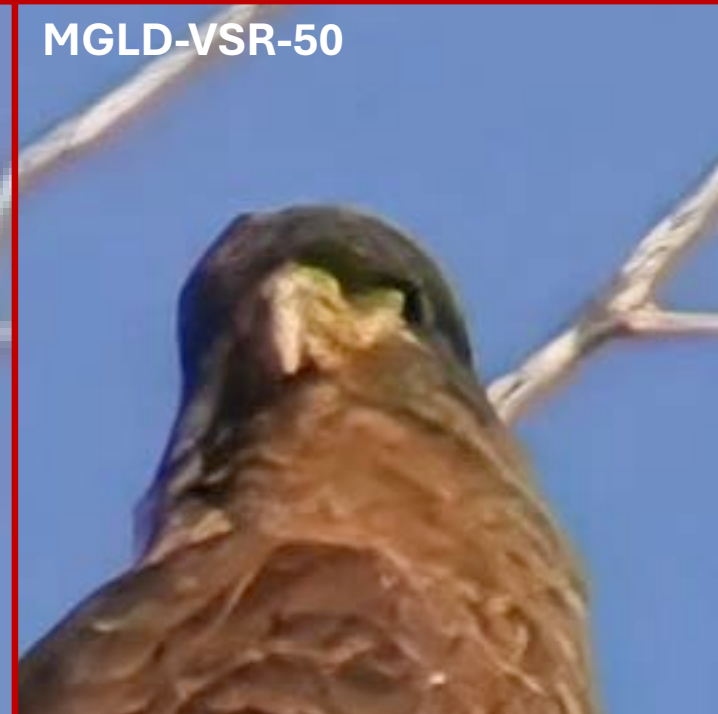
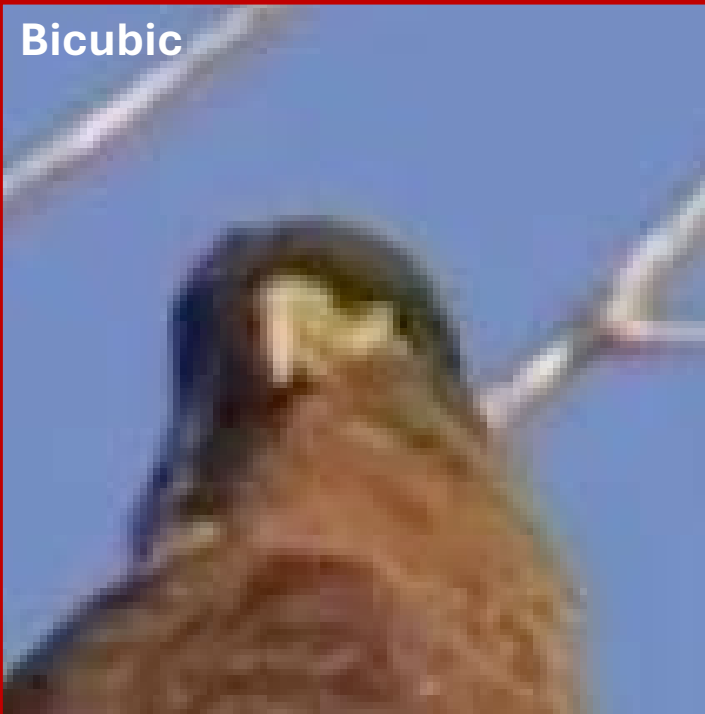


Inference Time ($100 \times 768 \times 1344$) (s/video)

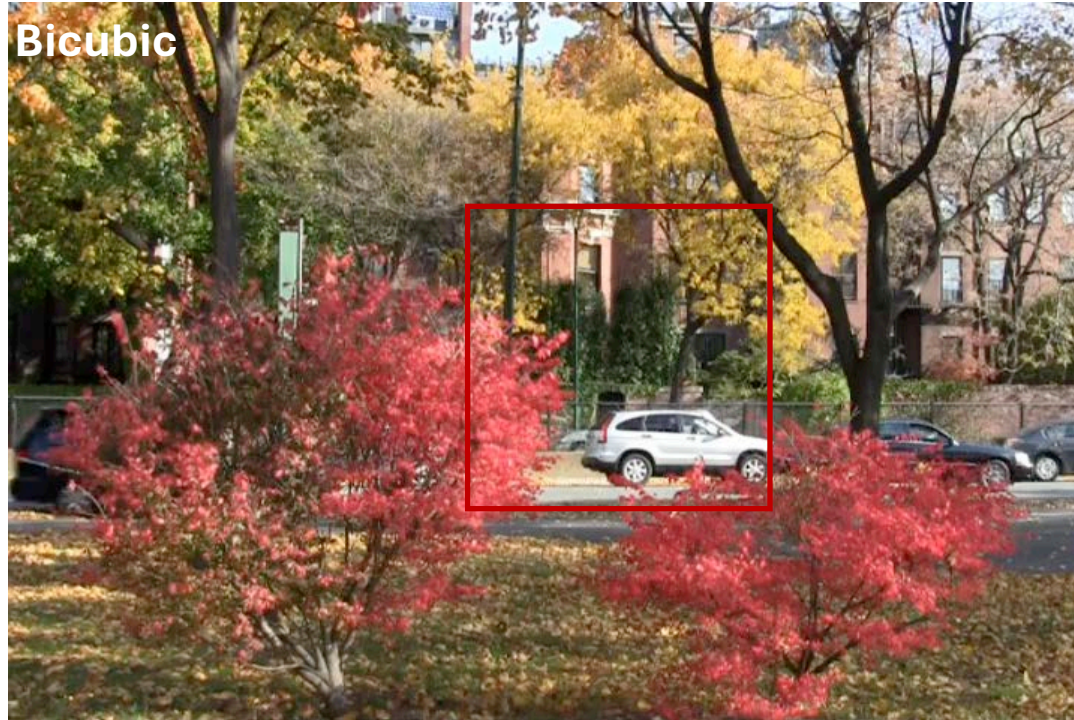


Results on 1080p Real-world Video Restoration





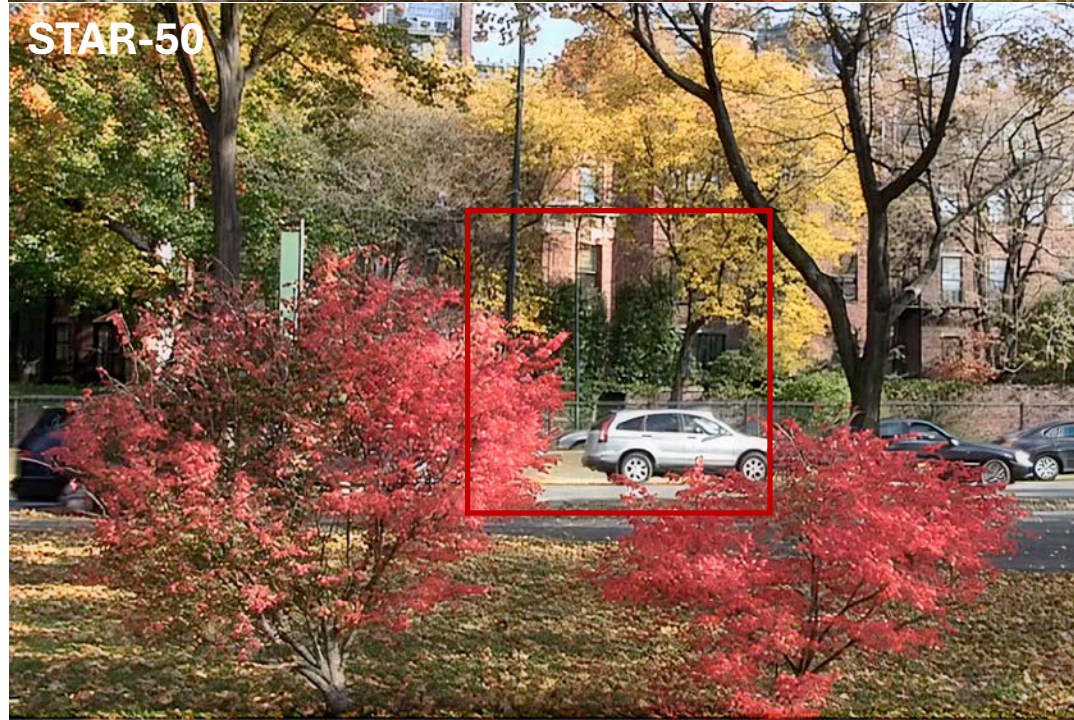
Bicubic



MGLD-VSR-50



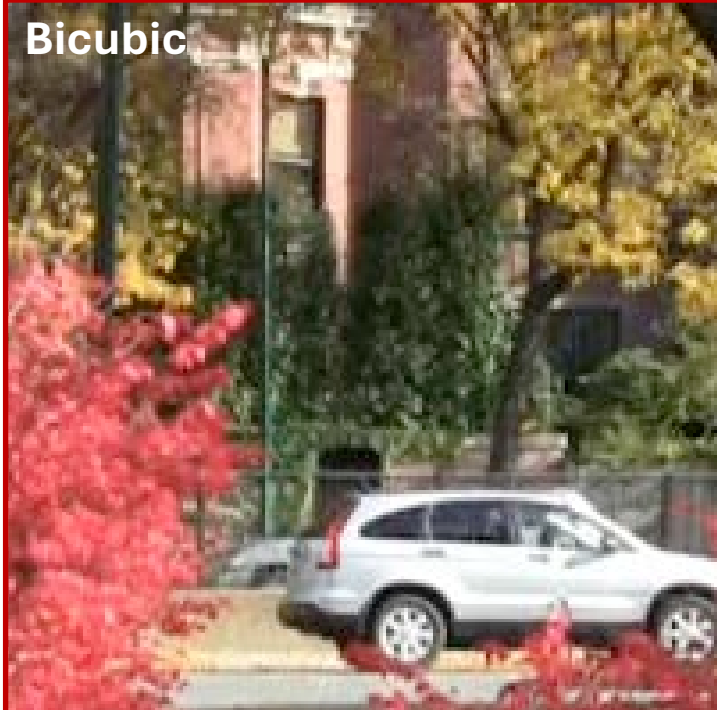
STAR-50



Ours-1



Bicubic



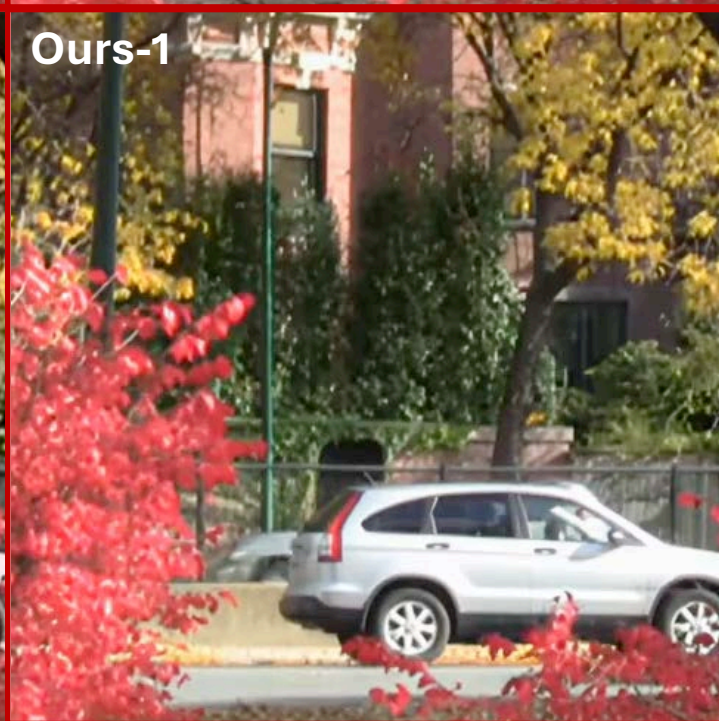
MGLD-VSR-50



STAR-50



Ours-1



Bicubic



MGLD-VSR-50

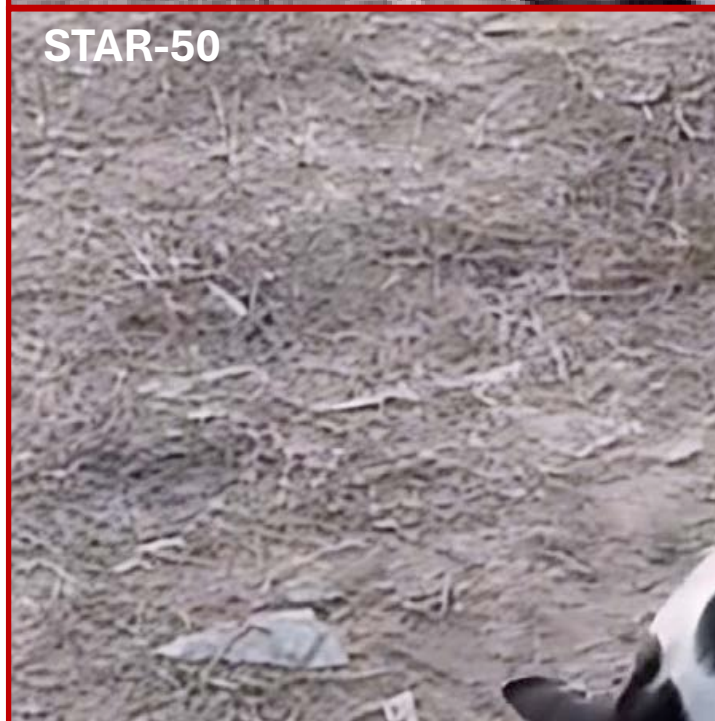
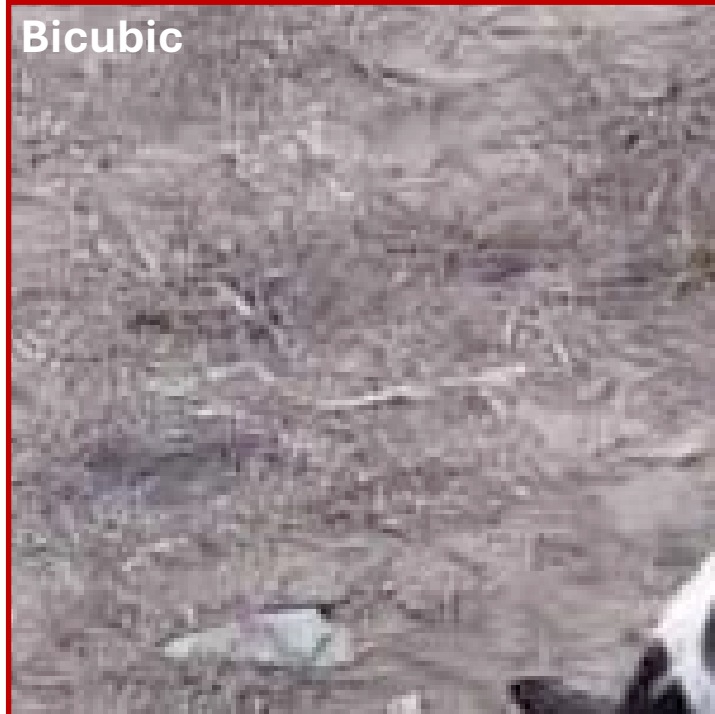


STAR-50



Ours-1





Results on 1080p AIGC Video Restoration

Bicubic



MGLD-VSR-50



STAR-50



Ours-1



Bicubic



MGLD-VSR-50



STAR-50



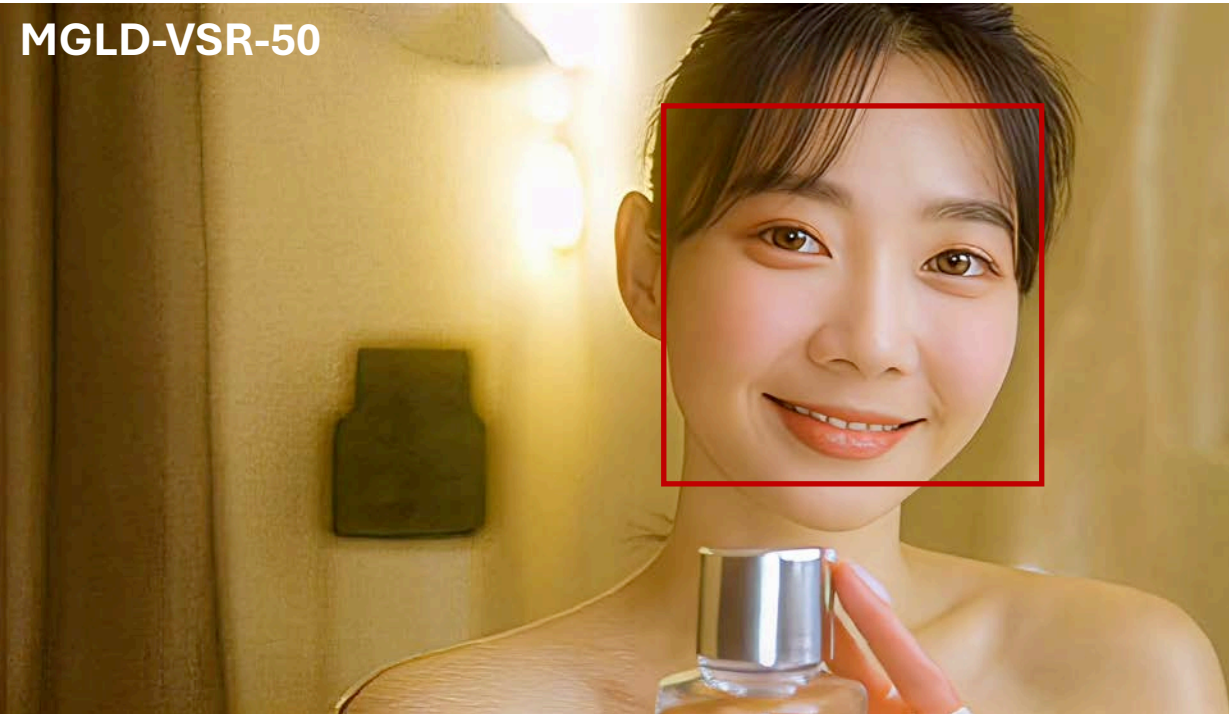
Durs-1



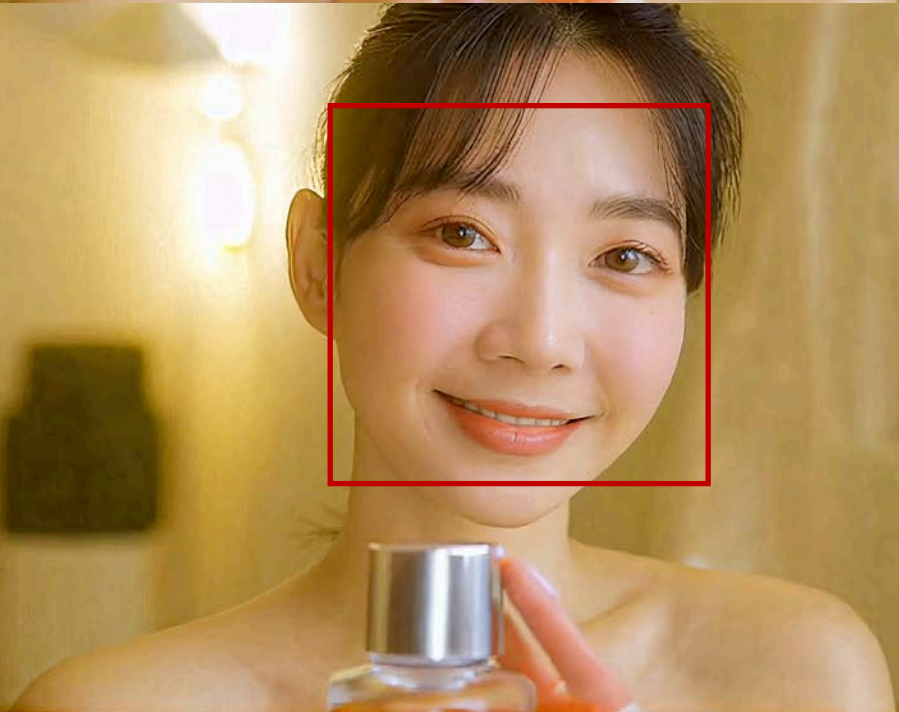
Bicubic



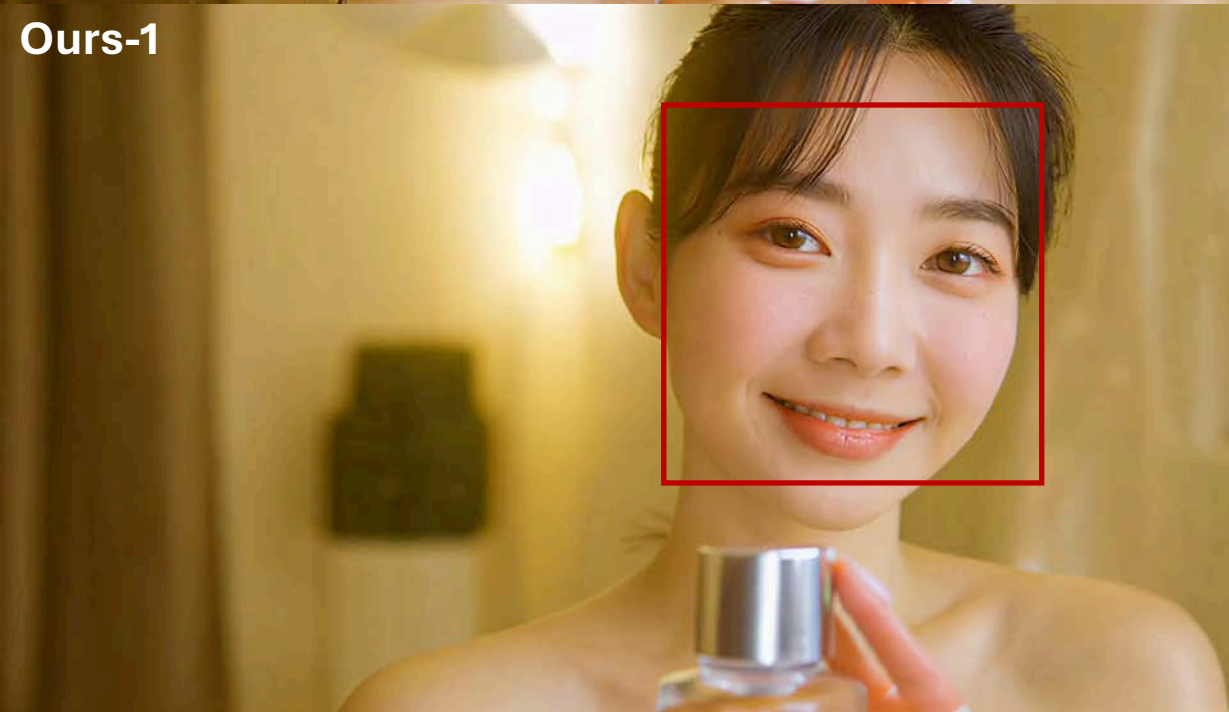
MGLD-VSR-50



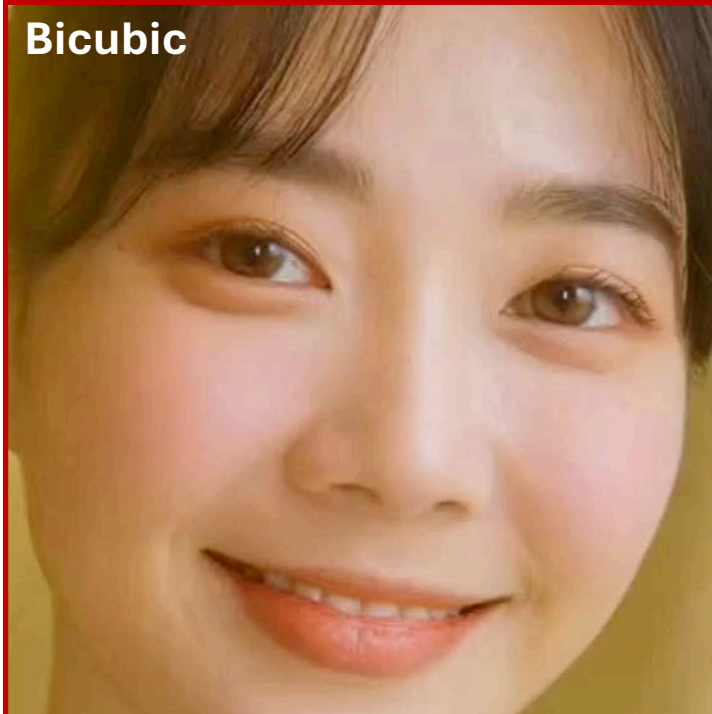
STAR-50



Ours-1



Bicubic



MGLD-VSR-50



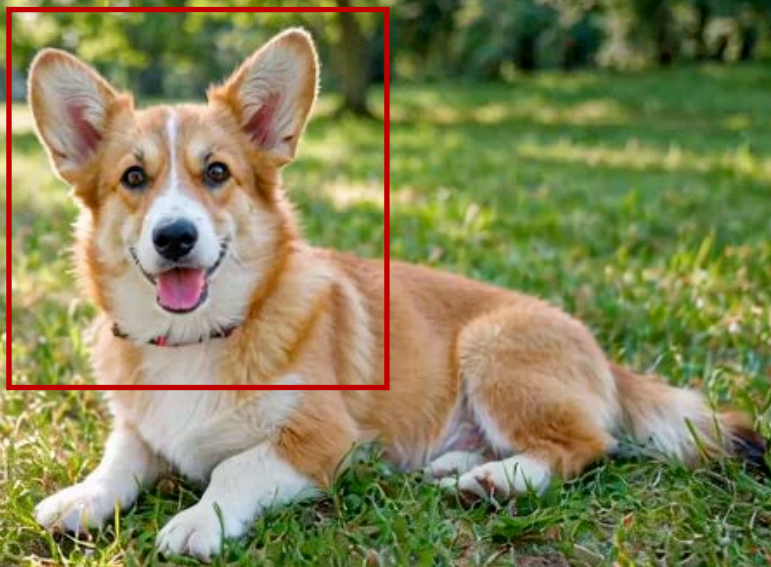
STAR-50



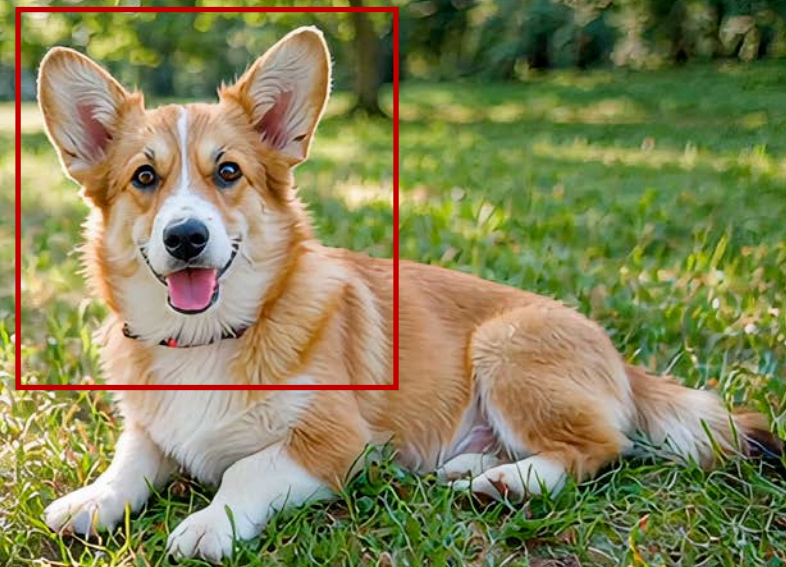
Ours-1



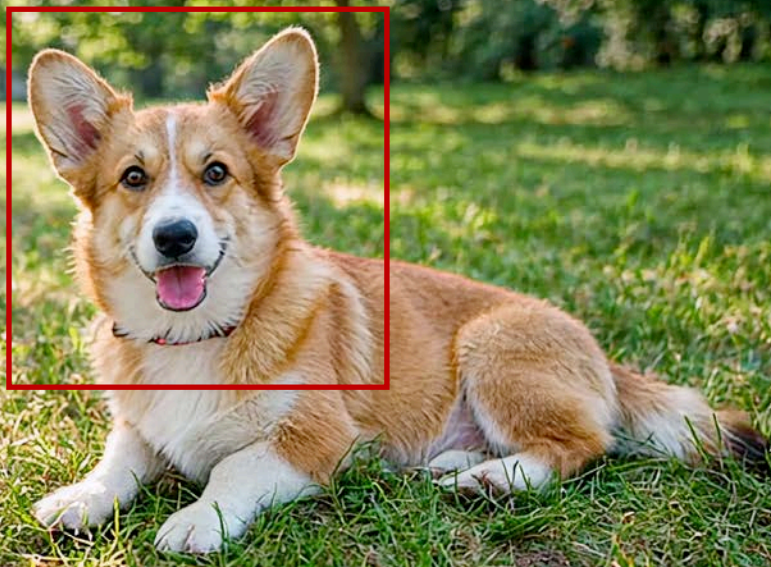
Bicubic



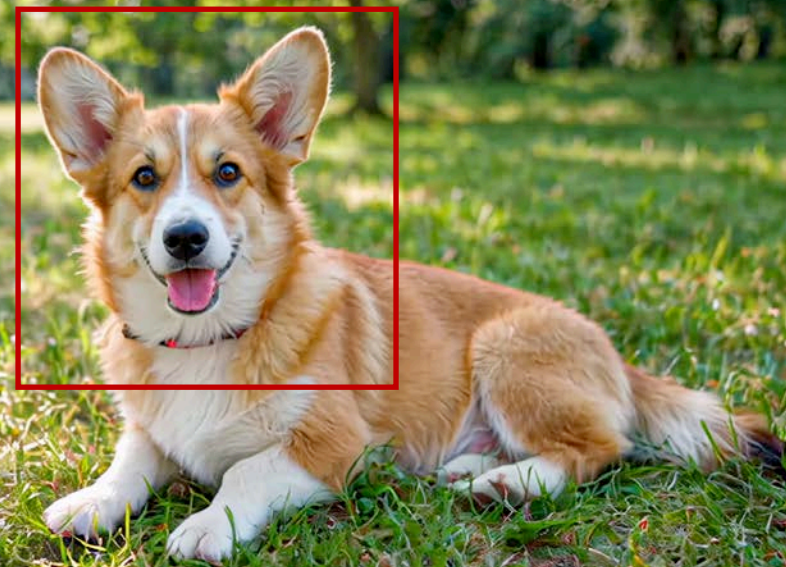
MGLD-VSR-50



STAR-50



Ours-1



Bicubic



MGLD-VSR-50



STAR-50



Ours-1

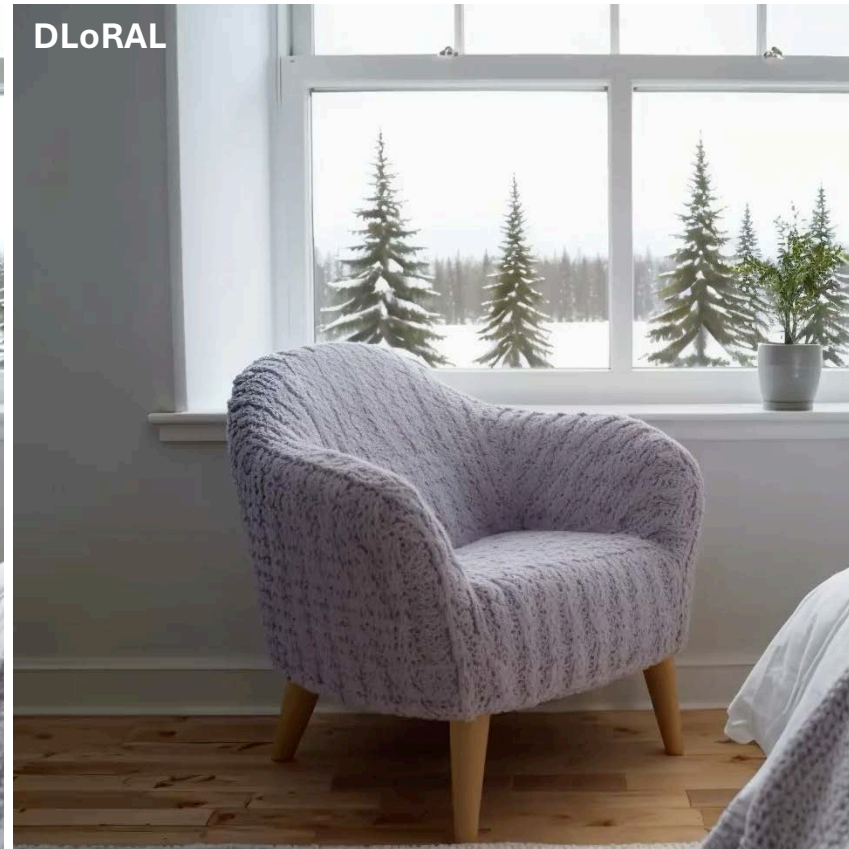


Comparison with DLoRAL

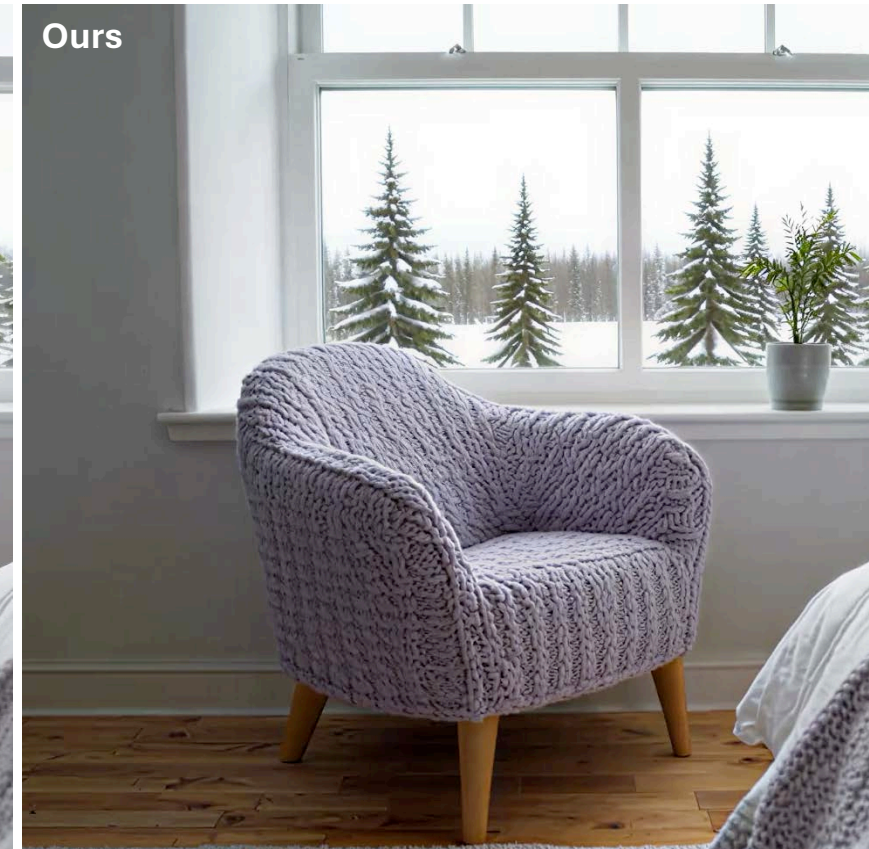
Bicubic

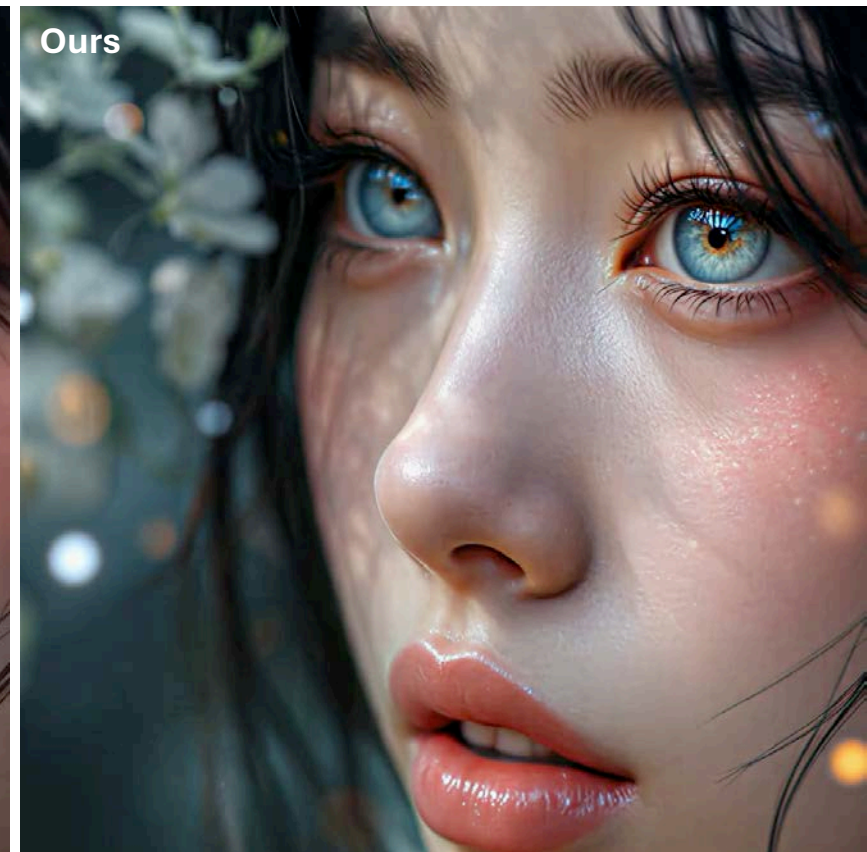
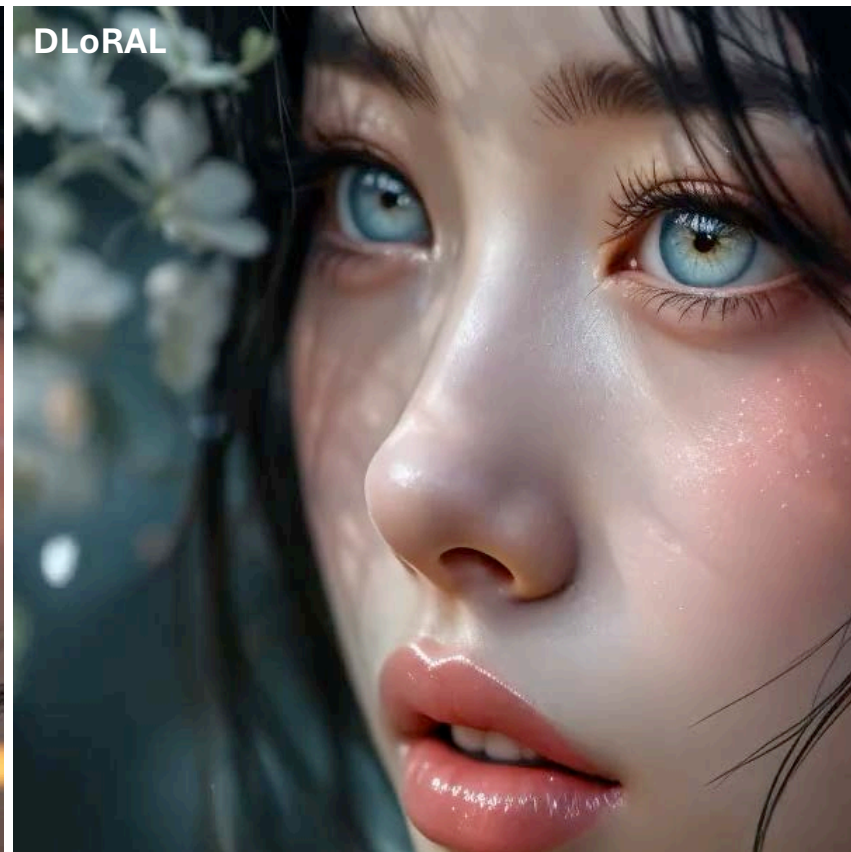
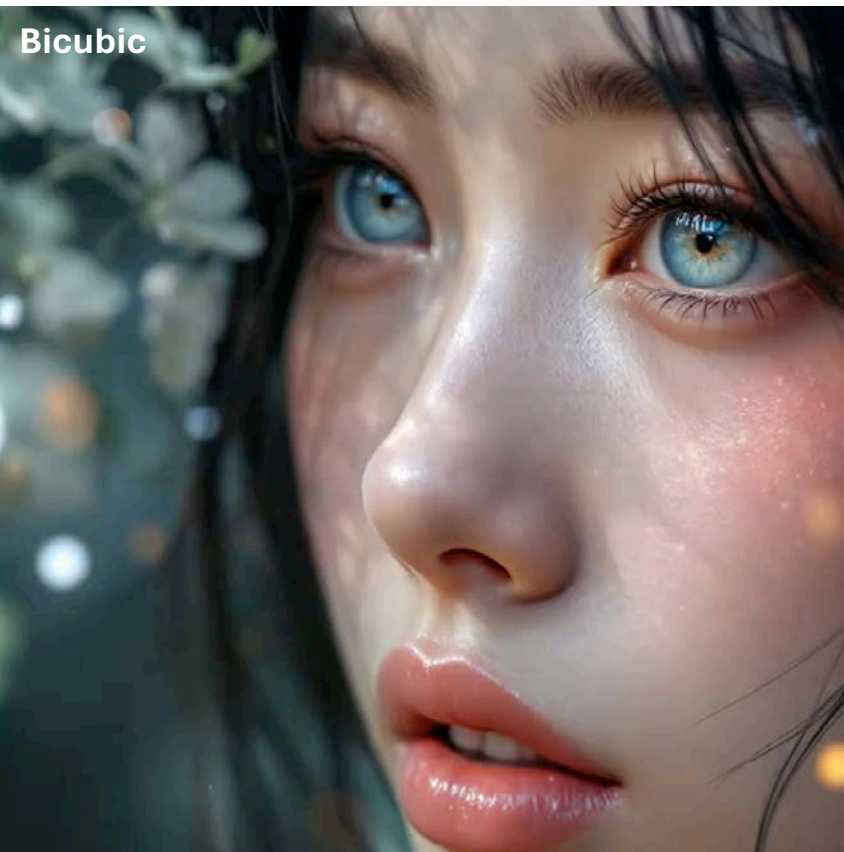


DLoRAL



Ours

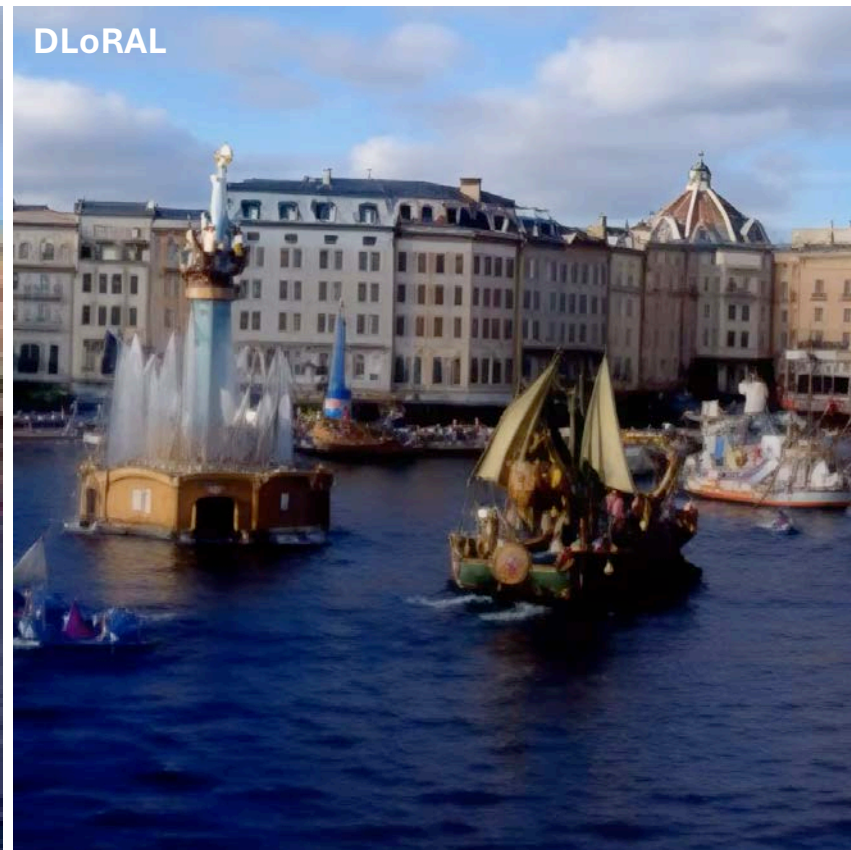




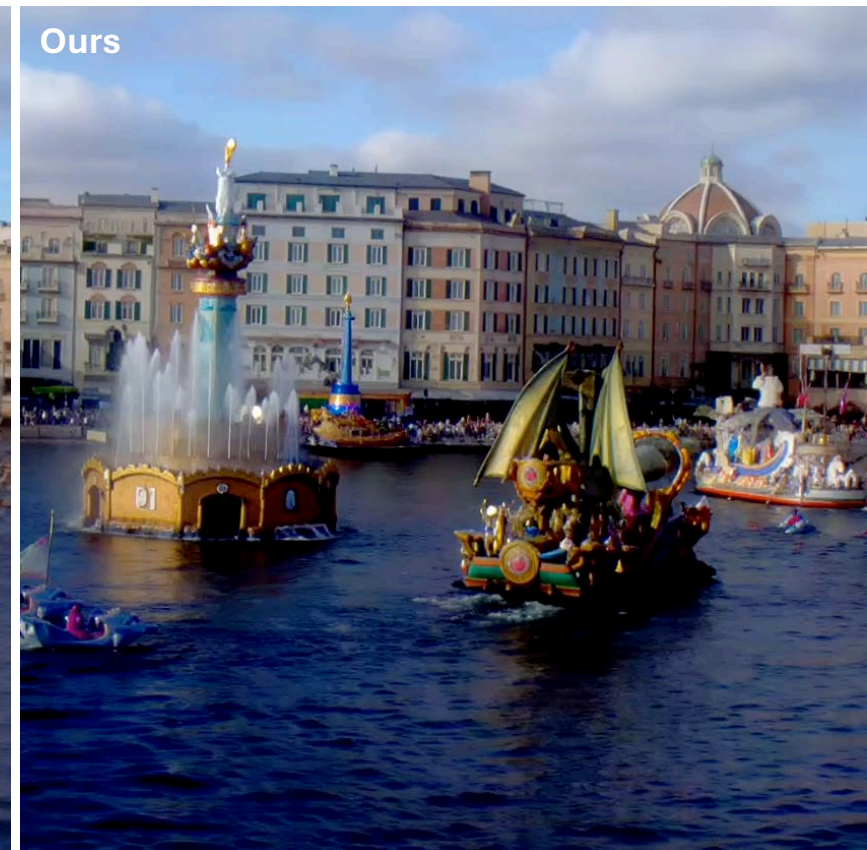
Bicubic



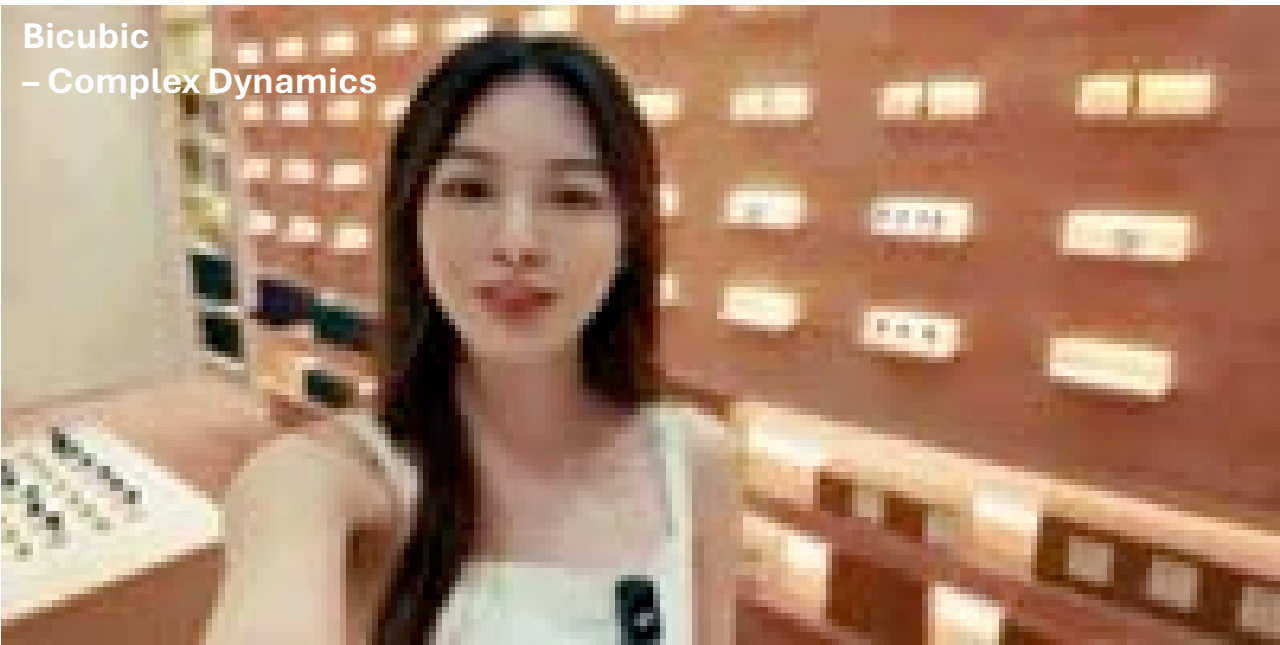
DLoRAL



Ours



**Restoration Results under
Real-world Challenging Scene**







Bicubic
- Heavy Degradation



Ours





More Demos

Thanks!