



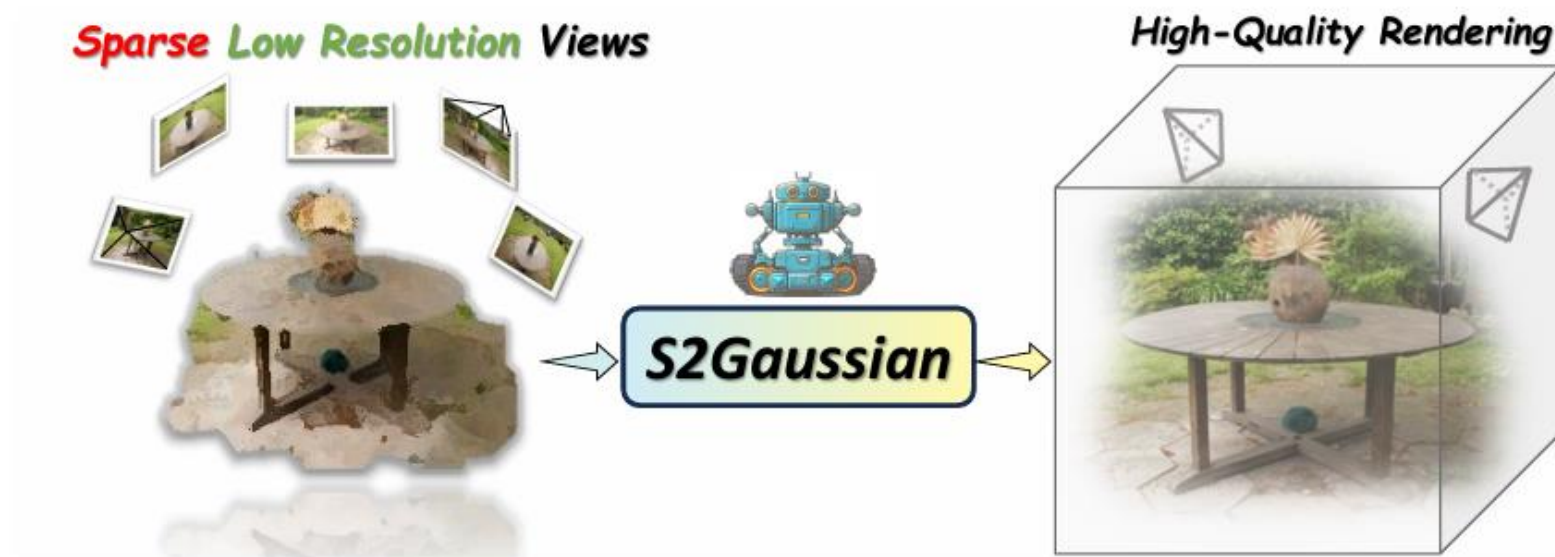
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S2Gaussian: Sparse-View Super-Resolution 3D Gaussian Splatting

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Background

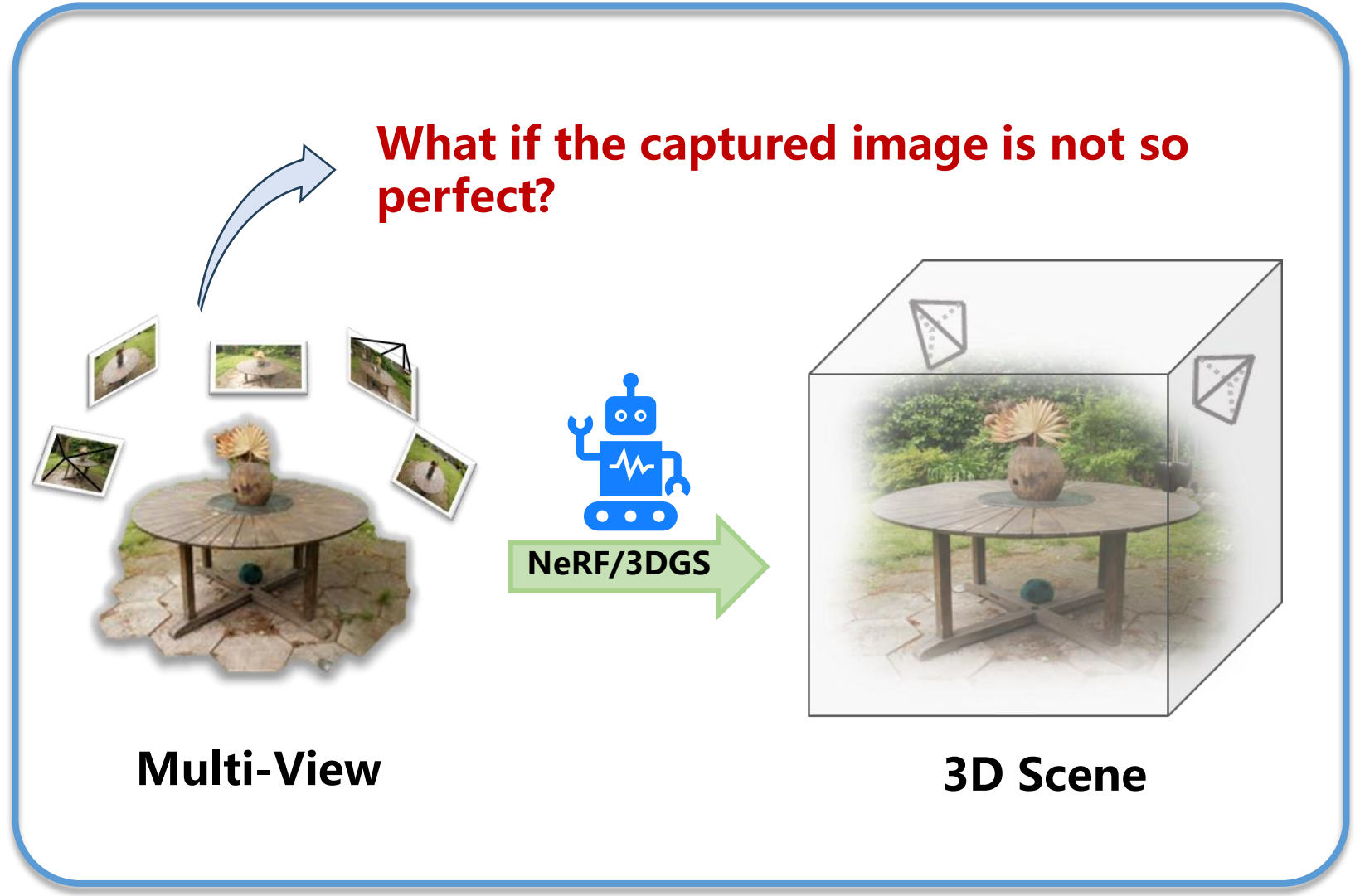
1

Sparse-View Method

- FSGS
- DNGaussian
- SparseGS
- SparseNeRF
- ...

Super-Resolution Method

- SRGS
- GaussianSR
- SuperGaussian
- NeRF-SR
- ...



Sparse-View Method

- FSGS
- DNGaussian
- SparseGS
- SparseNeRF
- ...

Super-Resolution Method

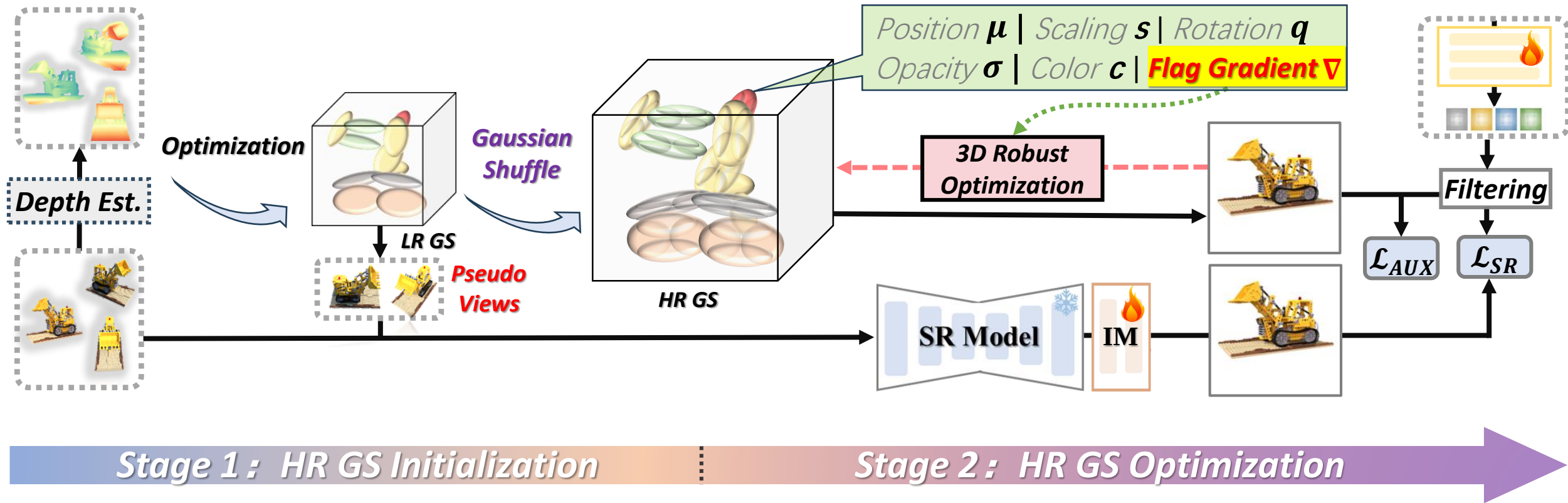
- SRGS
- GaussianSR
- SuperGaussian
- NeRF-SR
- ...

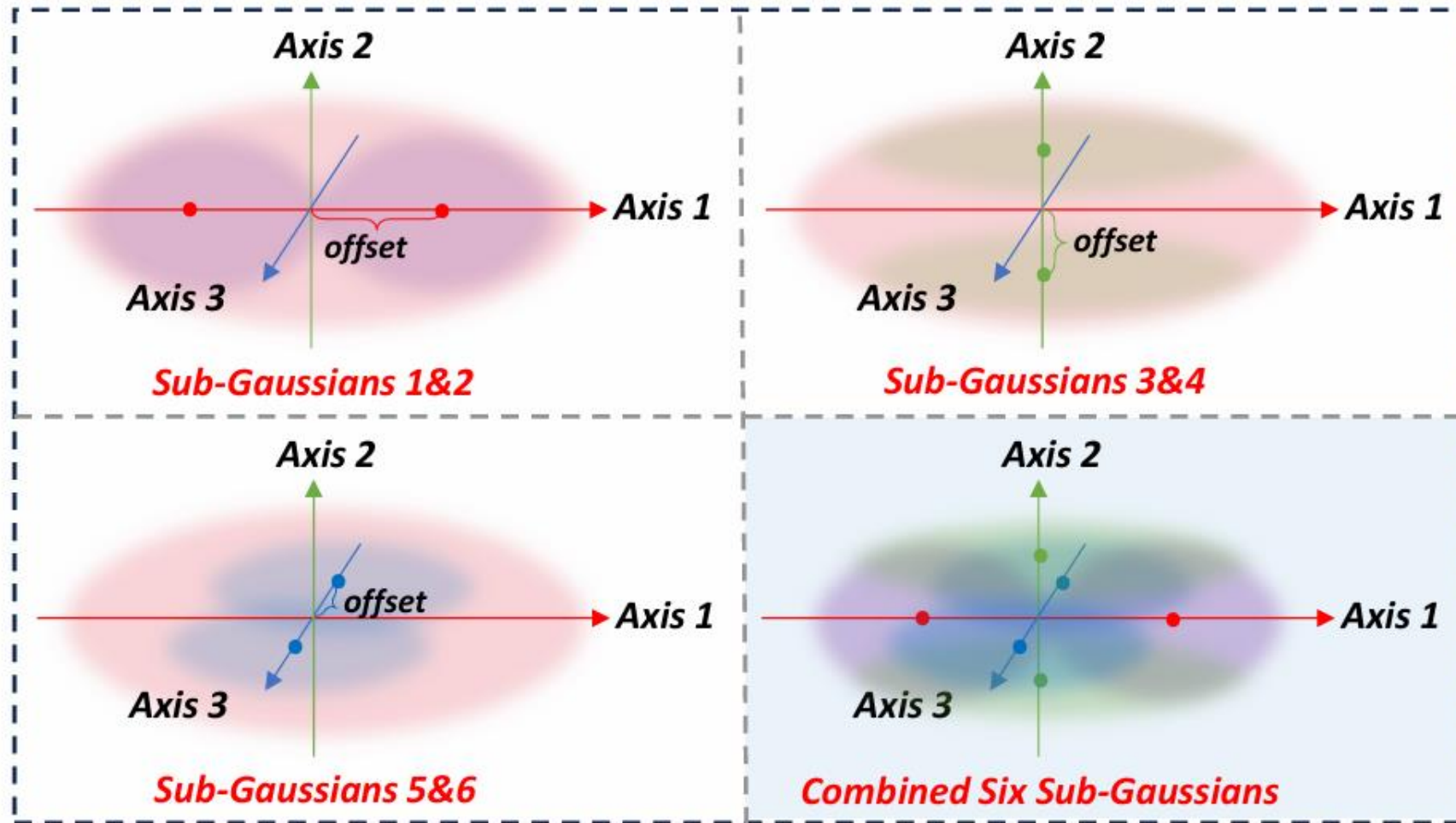
Sparse-view and low-resolution at the same time

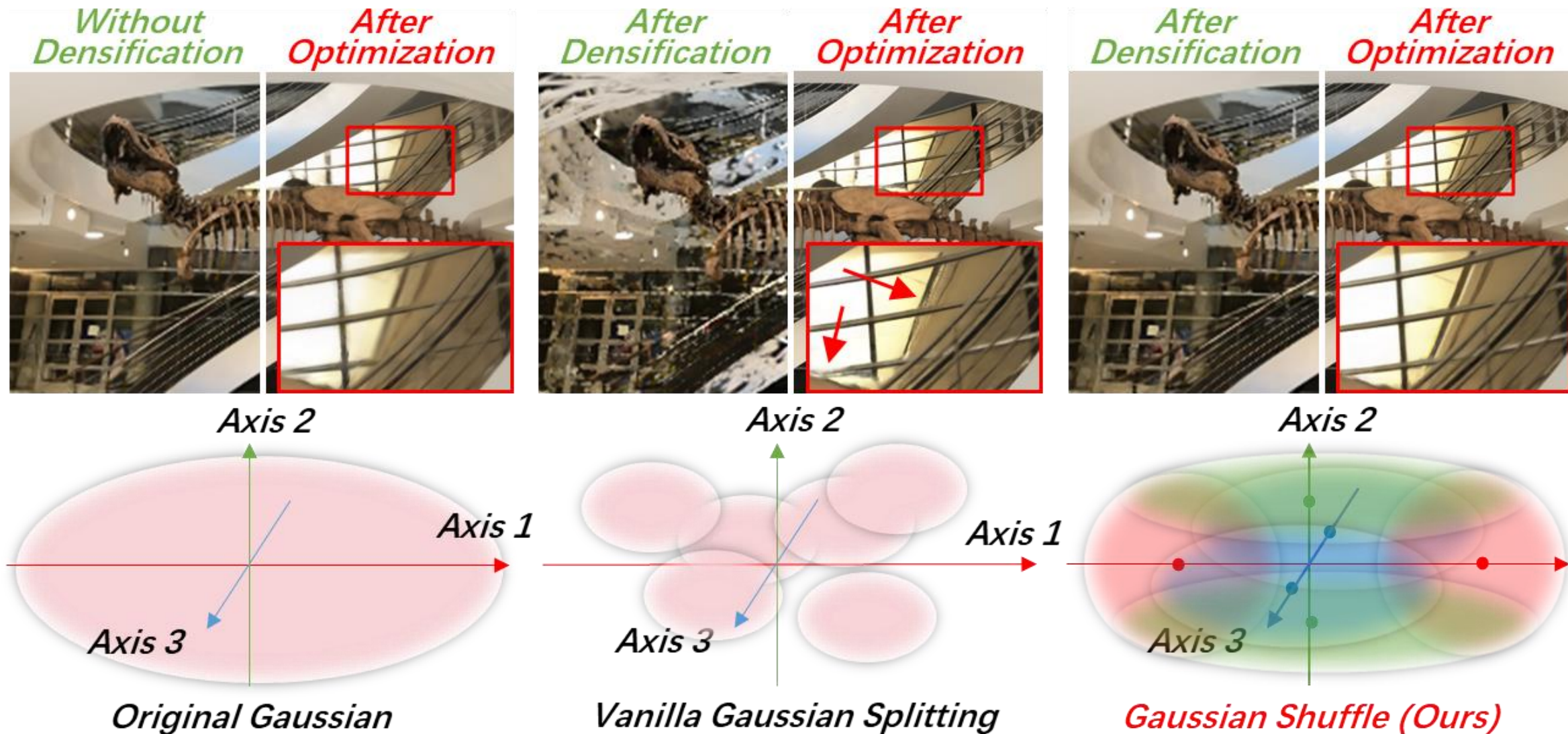


Method

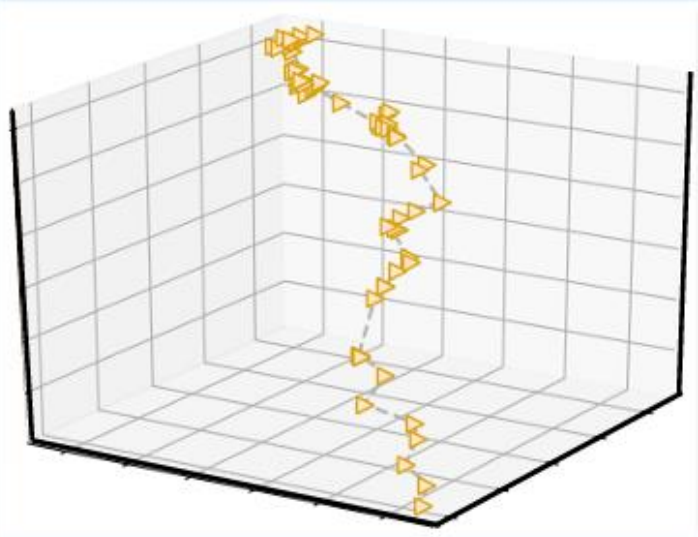
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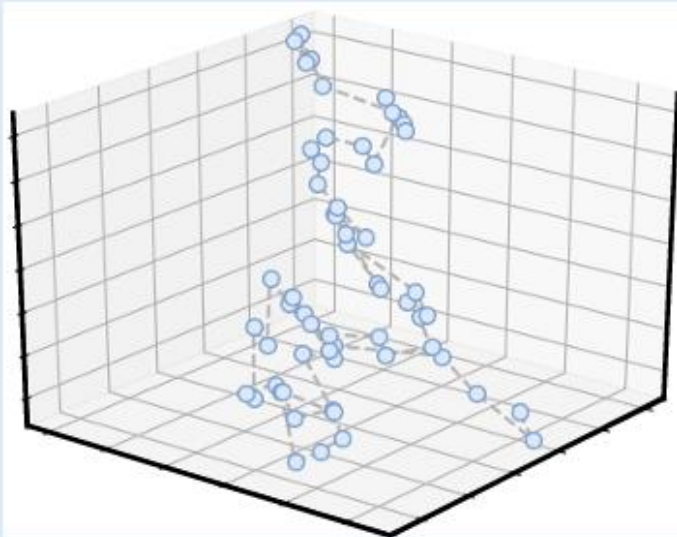




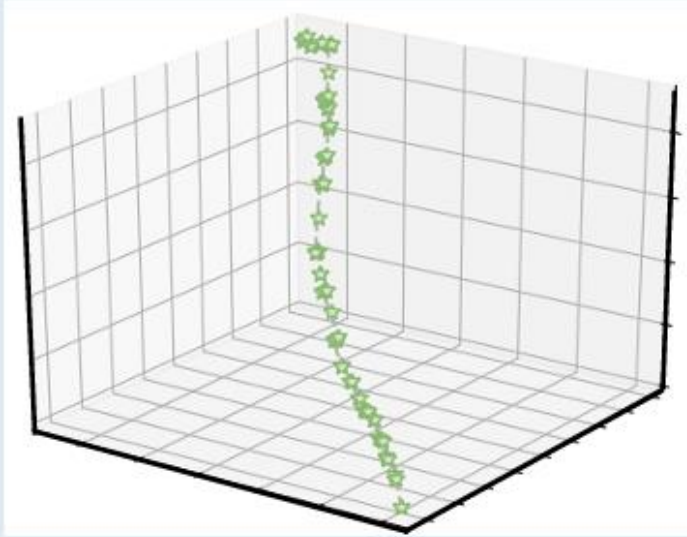
Normal Views

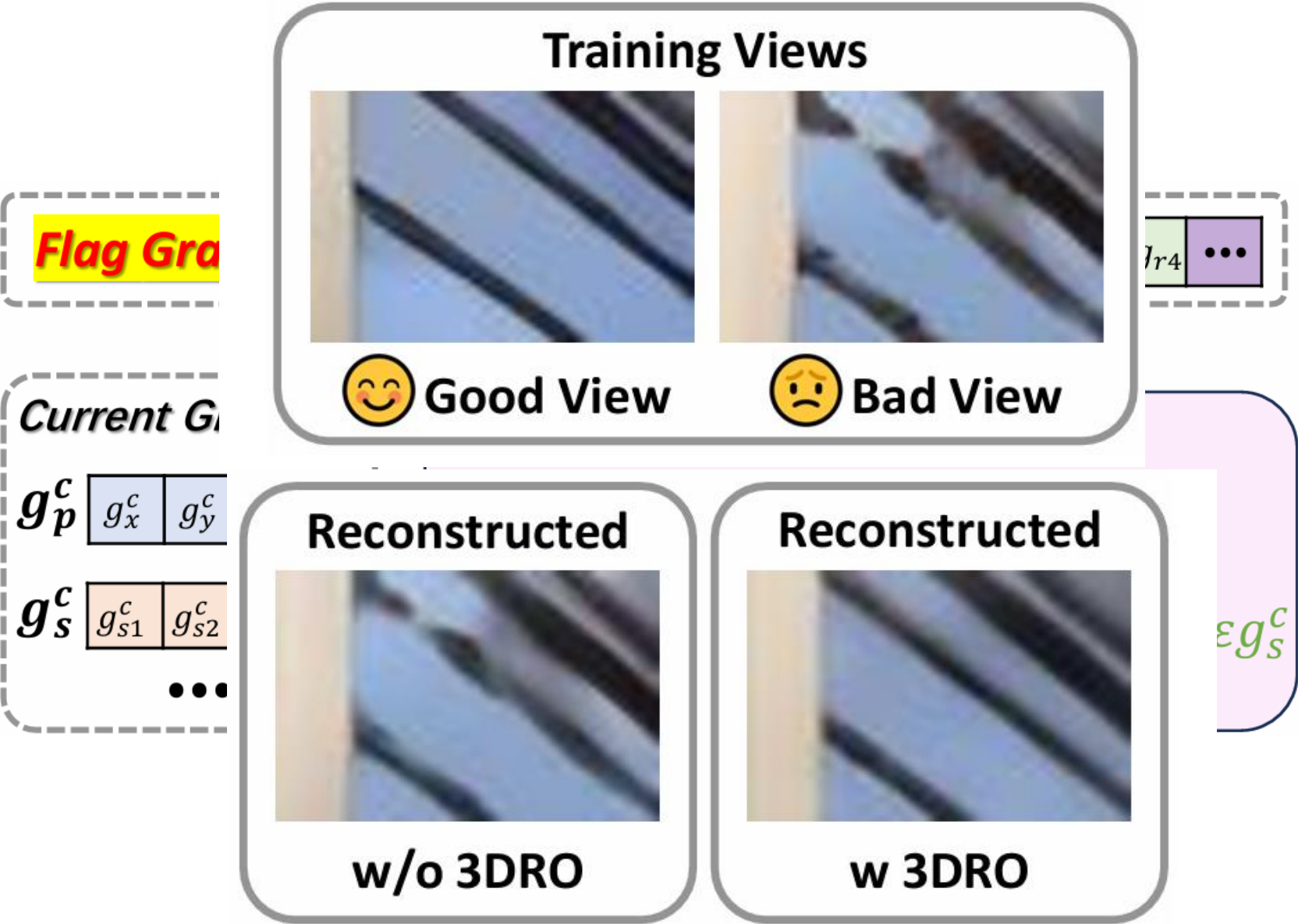


Corrupted Views



3D Robust Optimization

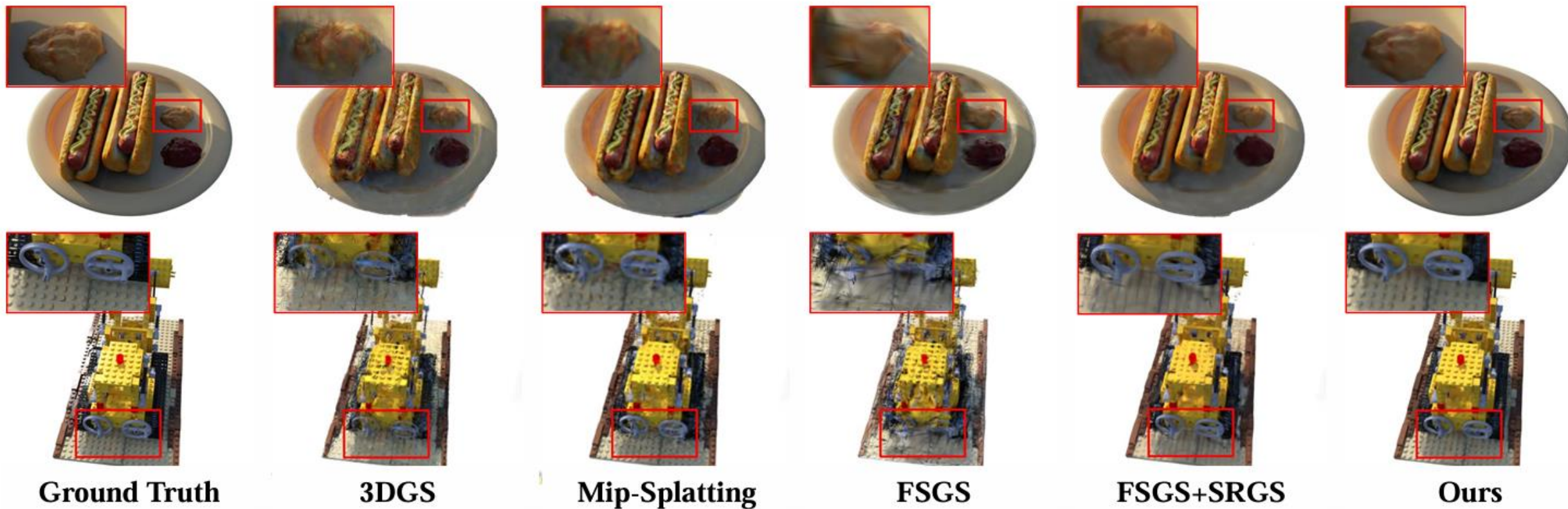


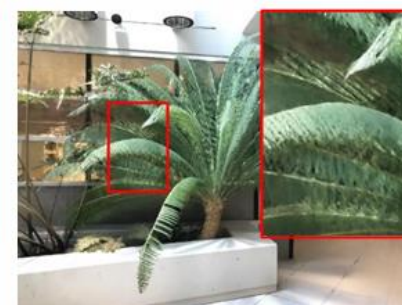
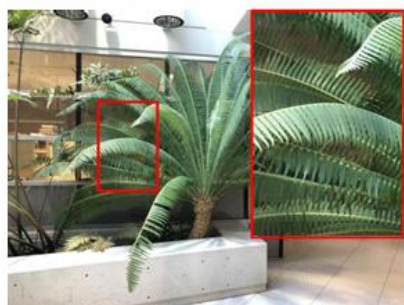


Method	Blender $\times 4$ (8 views)				LLFF $\times 4$ (3 views)				Mip-NeRF 360 $\times 4$ (24 views)			
	PSNR $\uparrow$	SSIM $\uparrow$	LPIPS $\downarrow$	FID $\downarrow$	PSNR $\uparrow$	SSIM $\uparrow$	LPIPS $\downarrow$	FID $\downarrow$	PSNR $\uparrow$	SSIM $\uparrow$	LPIPS $\downarrow$	FID $\downarrow$
NeRF-SR [33]	12.41	0.744	0.515	93.79	9.28	0.226	0.617	169.58	10.26	0.269	0.628	151.62
RegNeRF [26]	20.68	0.841	0.129	41.28	15.78	0.432	0.422	116.74	17.28	0.417	0.449	105.45
SparseNeRF [34]	21.32	0.844	0.136	42.62	16.32	0.446	0.428	127.64	17.38	0.432	0.446	109.27
3DGS [18]	20.65	0.831	0.141	42.58	13.01	0.272	0.489	138.53	16.25	0.342	0.474	108.32
SRGS [9]	22.64	0.862	0.116	36.24	17.58	0.472	0.291	102.43	18.37	0.457	0.397	91.62
Mip-Splatting [44]	22.78	0.868	0.119	33.63	15.65	0.433	0.372	114.03	18.08	0.448	0.421	86.17
DNGaussian [21]	20.97	0.844	0.135	41.15	16.27	0.430	0.346	129.26	17.21	0.422	0.452	112.22
FSGS [49]	21.45	0.854	0.133	40.36	18.35	0.505	0.247	97.07	18.64	0.458	0.394	94.21
FSGS [49]+SRGS [9]	22.68	0.865	0.114	35.42	19.49	0.590	0.175	62.63	19.83	0.513	0.448	84.12
S2Gaussian (Ours)	24.19	0.879	0.089	28.47	20.45	0.654	0.139	45.89	22.05	0.687	0.296	43.51

Results

9





Ground Truth

3DGS

Mip-Splatting

FSGS

FSGS+SRGS

Ours



Ground Truth

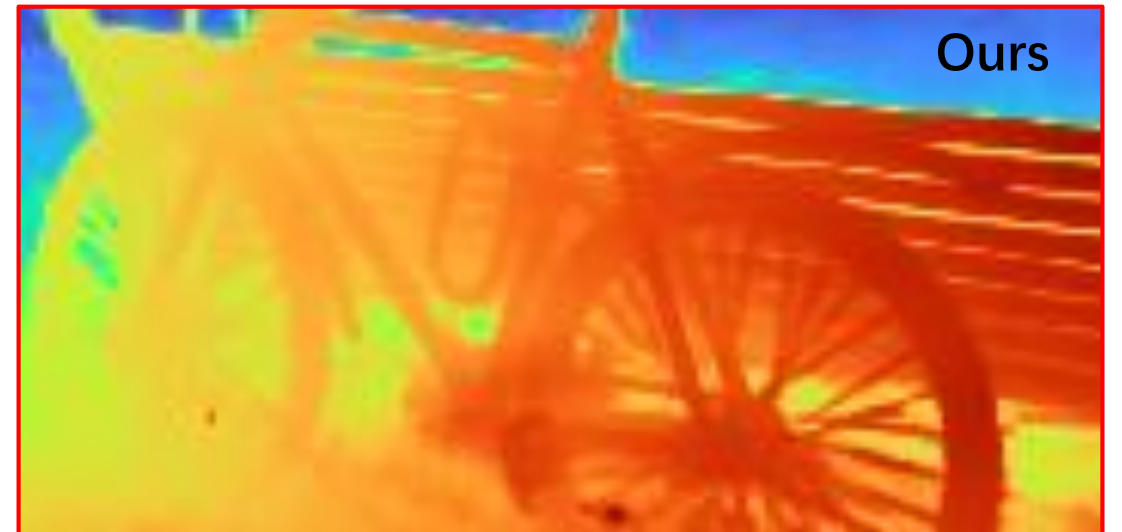
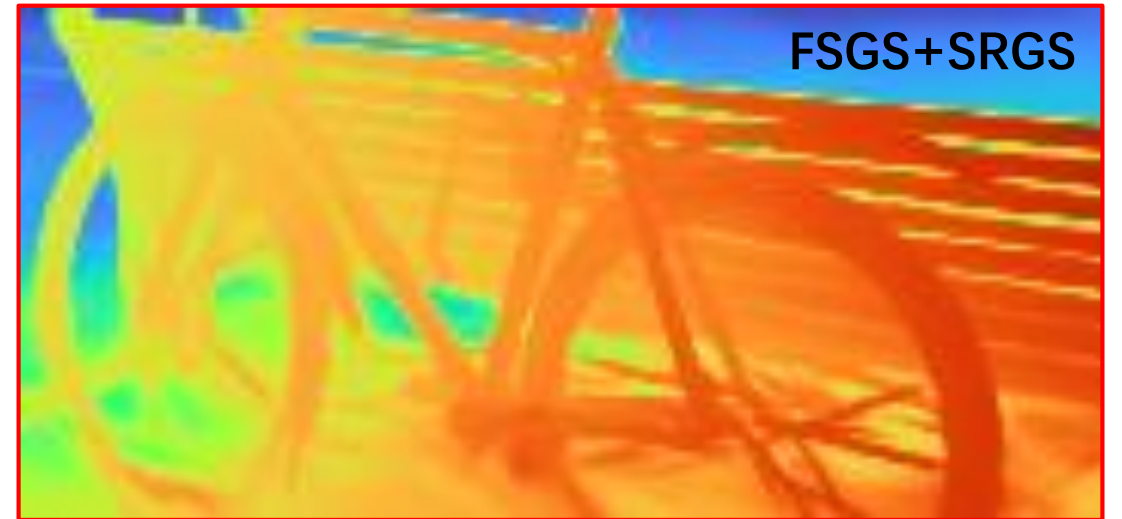
3DGS

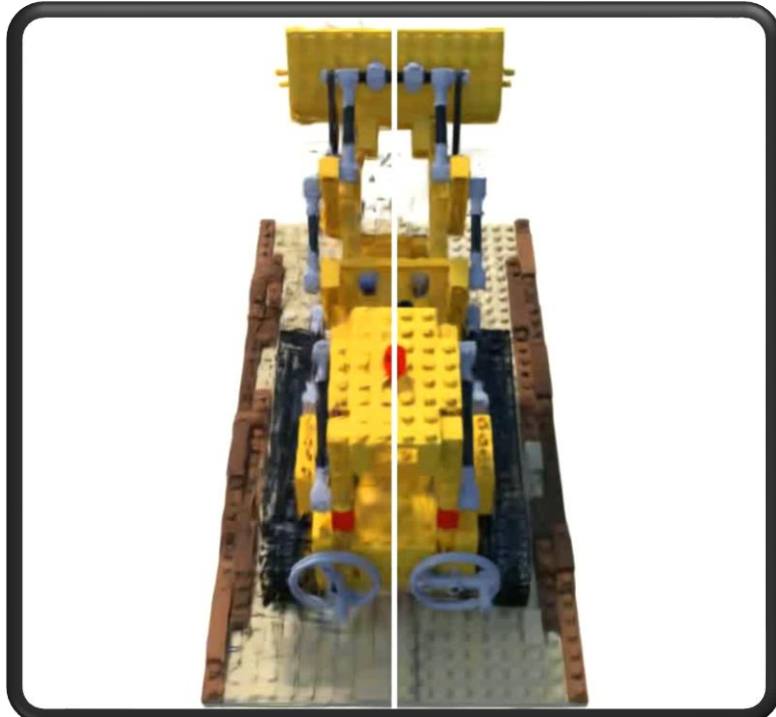
Mip-Splatting

FSGS

FSGS+SRGS

Ours





Thanks

Thank you for listening.