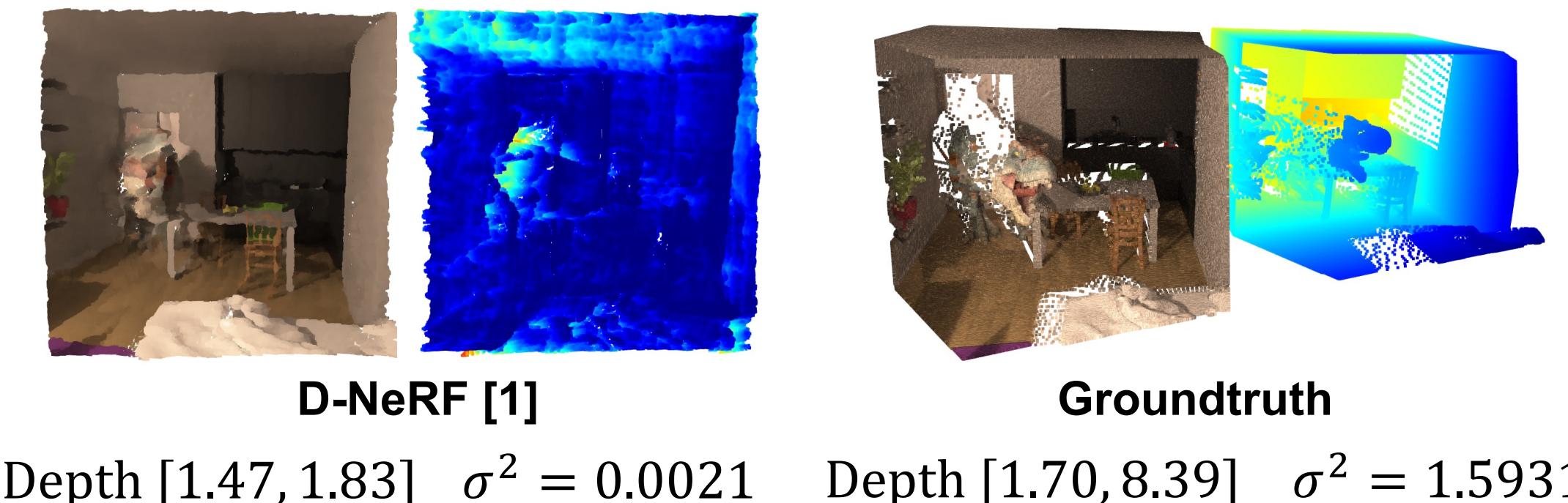




## Introduction

Novel view synthesis on dynamic scenes is under-constrained. The color output of D-NeRF [1] is blurry in non-rigid regions and the depth estimates reveal reconstruction failure.

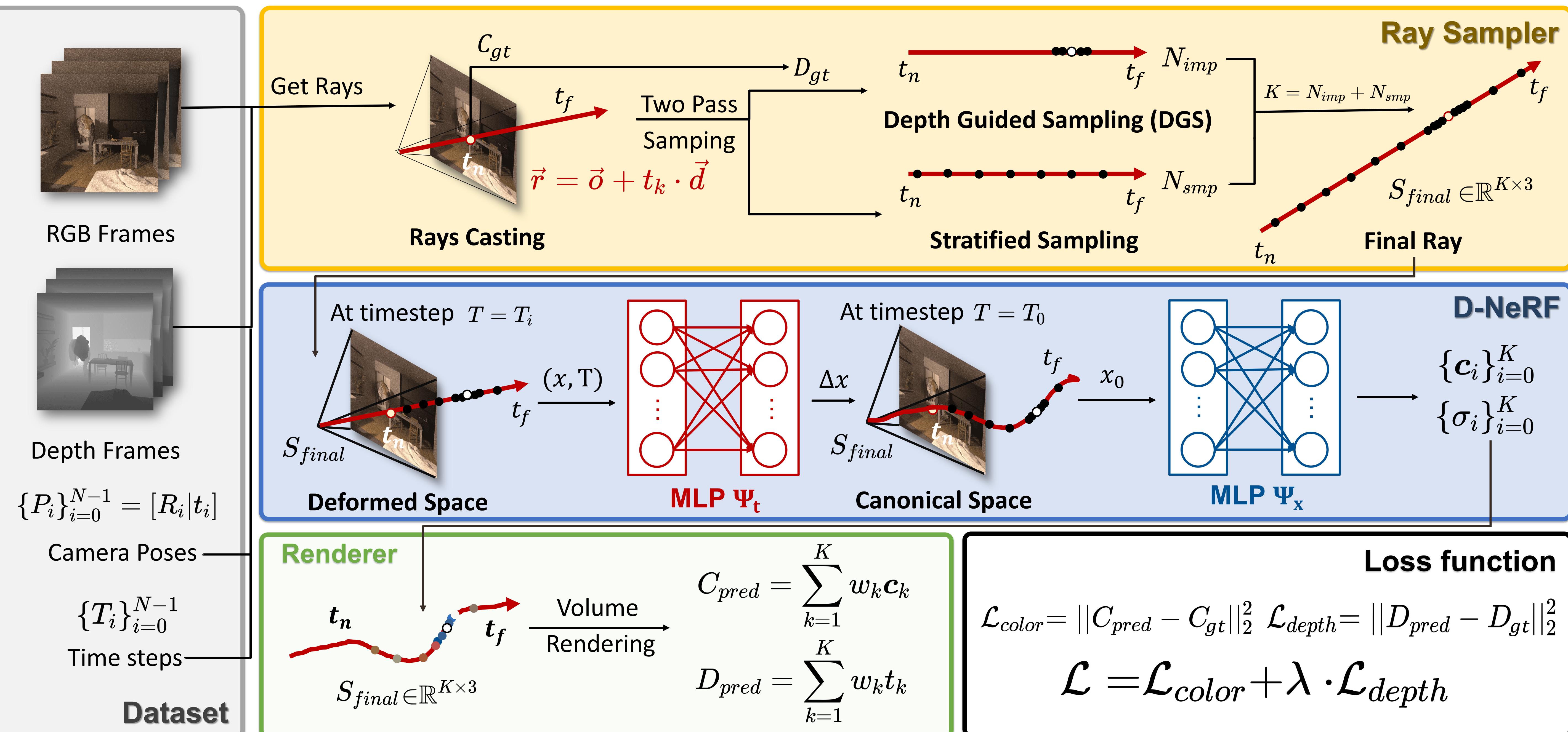
Our method leverages depth information to improve novel view synthesis on dynamic scenes.



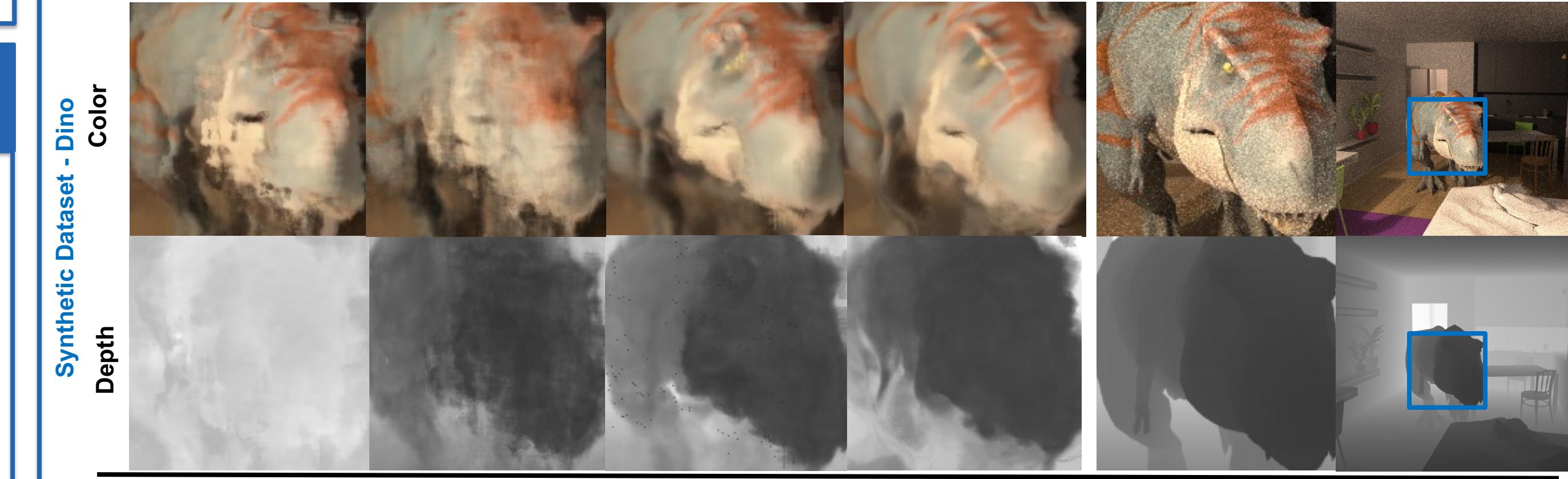
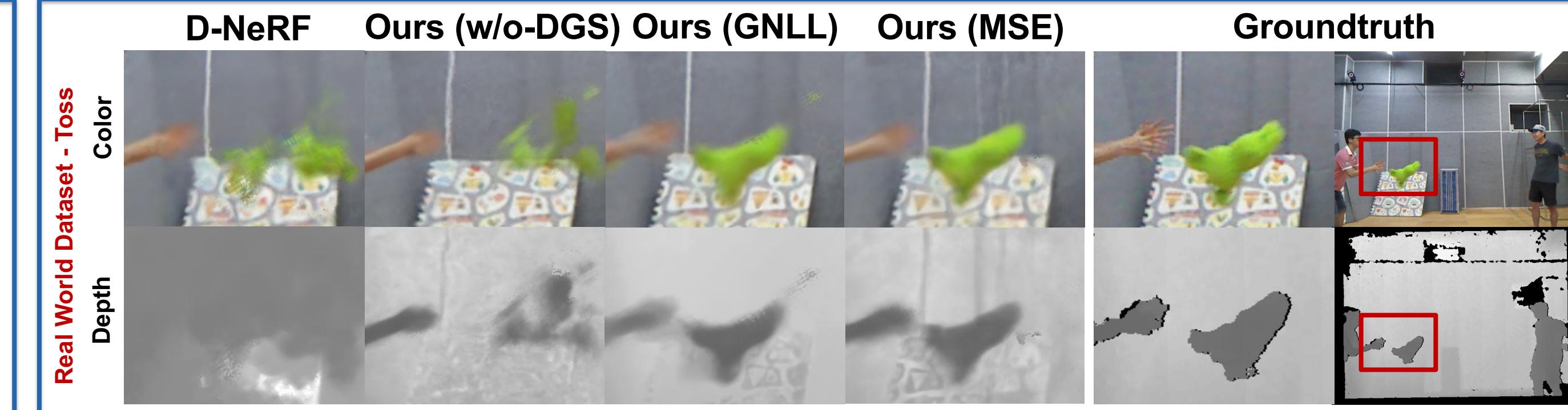
### Contributions:

- + Depth Supervision with MSE & GNLL Loss function
- + Depth Guided Sampling Strategy
- + Benchmarking on both Real and Synthetic Datasets

## Method



## Result



Method	PSNR↑	SSIM↑	LPIPS↓	RMSE↓
D-NeRF [1]	20.31	0.703	0.315	2.348
Ours (w/o DGS)	20.45	<b>0.715</b>	0.318	0.501
Ours (w/ GNLL)	20.54	0.710	<b>0.313</b>	<b>0.415</b>
Ours (w/ MSE)	<b>20.87</b>	0.703	0.335	0.468
Toss	D-NeRF [1]	22.13	0.330	0.692
	Ours (w/o DGS)	22.27	0.328	0.703
	Ours (w/ GNLL)	22.26	0.336	0.688
	Ours (w/ MSE)	<b>22.73</b>	<b>0.339</b>	<b>0.685</b>
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	Ours (w/ MSE)	<b>22.73</b>	<b>0.339</b>	<b>0.685</b>

## Conclusion

Depth-Supervised Dynamic NeRF takes advantage of depth information to better constrain the optimization, which improves novel view synthesis in terms of color and depth.

The large decrease in depth error shows that our method better recovers the geometry of dynamic scenes.