





Multi-View Stereo (MVS)

- X Lacks fine details

- MVS and PS for better recovery of the 3D shape.



Existing MVPS methods depend on:

- \times Complex multi-stage design \rightarrow difficult to execute

- We propose a simple and general solution for the MVPS problem.
- gradient effects in MVPS image formation.
- handle surfaces with complicated BRDF's.
- > Our method blends the predicted surface normals with a multi-view neural radiance field representation to recover the object's surface geometry.

Neural Radiance Fields Approach to Deep Multi-View Photometric Stereo Berk Kaya¹, Suryansh Kumar^{1*}, Francesco Sarno¹, Vittorio Ferrari², Luc Van Gool^{1,3} Computer Vision Lab, ETH Zurich¹, Google Research², KU Leuven³

Quantitative 3D reconstruction accuracy comparison against the competing methods on DiLiGenT-MV benchmark [Li et al. 2020]. We used Chamfer-L1 metric to compute the accuracy.

ods (↓)		Multi-Stage Fusion Methods (↓)		
RF	Ours	R-MVPS	B-MVPS	Ours
62	0.66	0.89	0.63	0.66
99	1.00	0.64	0.40	1.00
92	0.71	0.42	0.54	0.71
64	0.63	1.29	0.55	0.63
22	0.82	0.98	0.85	0.82

NeRF



Ground-truth

Key references: ► Ikehata, CNN-PS, ECCV 2018 ≻ Mildenhall et al., NeRF, ECCV 2020