| | LLFF | | | | | | | | | DL3DV | | | | | | | | | Casual | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Geometry | | | Texture | | | All | | | Geometry | | | Texture | | | All | | | Geometry | | | Texture | | | All | | |
| Feature | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ |
| $VGGT_{enc}$ | 19.85 | .7450 | .2127 | 19.05 | .7120 | .2273 | 19.86 | .7165 | .2911 | 19.65 | .7372 | .3143 | 18.05 | .6770 | .3237 | 19.38 | .7358 | .3534 | 19.36 | .6590 | .3549 | 17.47 | .5645 | .3751 | 19.23 | .6604 | .4103 |
| $VGGT_{dec}$ | 19.81 | .7410 | .2167 | 19.03 | .7122 | .2258 | 19.83 | .7143 | .2748 | 19.59 | .7353 | .3191 | 18.01 | .6806 | .3236 | 19.20 | .7328 | .3534 | 19.17 | .6588 | .3578 | 17.58 | .5646 | .3786 | 19.37 | .6550 | .4107 |
| DUSt3R | 19.88 | .7442 | .2123 | 19.01 | .7120 | .2262 | 19.87 | .7190 | .2691 | 19.64 | .7338 | .3196 | 18.01 | .6815 | .3219 | 19.39 | .7360 | .3458 | 19.29 | .6562 | .3580 | 17.54 | .5693 | .3750 | 19.19 | .6556 | .4050 |
| MASt3R | 19.89 | .7447 | .2123 | 19.01 | .7115 | .2261 | 19.99 | .7250 | .2657 | 19.64 | .7334 | .3188 | 18.07 | .6813 | .3211 | 19.41 | .7373 | .3464 | 19.30 | .6550 | .3576 | 17.59 | .5708 | .3722 | 19.37 | .6588 | .4027 |
| MiDaS | 19.81 | .7420 | .2154 | 19.00 | .7129 | .2261 | 19.86 | .7142 | .2733 | 19.47 | .7271 | .3311 | 17.94 | .6796 | .3224 | 19.22 | .7291 | .3493 | 19.24 | .6545 | .3612 | 17.52 | .5693 | .3757 | 18.96 | .6516 | .4073 |
| DINOv2 | 19.77 | .7345 | .2226 | 19.04 | .7133 | .2254 | 19.91 | .7163 | .2637 | 19.47 | .7293 | .3288 | 18.00 | .6805 | .3223 | 19.27 | .7317 | .3479 | 19.42 | .6524 | .3698 | 17.64 | .5701 | .3754 | 19.21 | .6535 | .4023 |
| DINO | 19.81 | .7423 | .2140 | 18.98 | .7121 | .2260 | 19.97 | .7212 | .2744 | 19.60 | .7324 | .3209 | 17.97 | .6790 | .3219 | 19.41 | .7359 | .3476 | 19.24 | .6513 | .3614 | 17.50 | .5683 | .3756 | 19.10 | .6566 | .4056 |
| SAM | 19.72 | .7354 | .2181 | 18.98 | .7133 | .2260 | 19.76 | .7144 | .2629 | 19.48 | .7297 | .3271 | 17.97 | .6822 | .3218 | 19.20 | .7272 | .3459 | 19.32 | .6469 | .3704 | 17.52 | .5725 | .3736 | 19.19 | .6569 | .3981 |
| CLIP | 19.78 | .7378 | .2221 | 19.02 | .7113 | .2276 | 19.74 | .7136 | .2822 | 19.53 | .7295 | .3304 | 18.05 | .6771 | .3235 | 19.22 | .7310 | .3563 | 19.21 | .6552 | .3719 | 17.46 | .5669 | .3743 | 19.05 | .6582 | .4084 |
| RADIO | 19.73 | .7402 | .2207 | 19.06 | .7101 | .2301 | 19.56 | .6999 | .3252 | 19.48 | .7313 | .3139 | 18.03 | .6748 | .3254 | 19.20 | .7316 | .3654 | 19.54 | .6545 | .3465 | 17.52 | .5666 | .3748 | 18.67 | .6533 | .4216 |
| MAE | 19.75 | .7363 | .2183 | 19.00 | .7128 | .2249 | 19.92 | .7209 | .2612 | 19.54 | .7288 | .3248 | 17.98 | .6821 | .3207 | 19.34 | .7310 | .3448 | 19.03 | .6502 | .3690 | 17.51 | .5691 | .3758 | 19.18 | .6547 | .3974 |
| SD | 19.62 | .7293 | .2234 | 18.85 | .7100 | .2297 | 19.78 | .7121 | .2656 | 19.31 | .7251 | .3276 | 17.79 | .6784 | .3260 | 19.10 | .7282 | .3500 | 19.24 | .6483 | .3649 | 17.38 | .5698 | .3789 | 18.86 | .6505 | .4053 |
| IUVRGB | 15.55 | .5765 | .3986 | 19.75 | .7303 | .2262 | 15.38 | .6175 | .4308 | 14.78 | .6326 | .4541 | 18.75 | .7023 | .3250 | 14.05 | .6431 | .4386 | 13.17 | .5454 | .5248 | 17.88 | .5927 | .3846 | 13.71 | .5917 | .4955 |

| | MipNeRF 360 | | | | | | | | | MVImgNet | | | | | | | | | Tanks and Temples | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Geometry | | | Texture | | | All | | | Geometry | | | Texture | | | All | | | Geometry | | | Texture | | | All | | |
| Feature | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ |
| $VGGT_{enc}$ | 20.93 | .5120 | .3639 | 19.25 | .4497 | .3828 | 21.17 | .5102 | .4892 | 19.48 | .6019 | .2975 | 17.00 | .5373 | .3346 | 19.58 | .5987 | .3748 | 19.21 | .6615 | .3547 | 17.75 | .6221 | .3319 | 19.04 | .6593 | .4017 |
| $VGGT_{dec}$ | 20.82 | .5041 | .3775 | 19.02 | .4476 | .3830 | 20.92 | .5053 | .4865 | 19.28 | .5934 | .3106 | 16.84 | .5338 | .3345 | 19.44 | .5930 | .3743 | 18.88 | .6476 | .3683 | 17.56 | .6227 | .3344 | 18.61 | .6497 | .4053 |
| DUSt3R | 20.82 | .5008 | .3795 | 19.10 | .4489 | .3816 | 21.02 | .5048 | .4752 | 19.47 | .6004 | .3073 | 16.88 | .5348 | .3334 | 19.43 | .5937 | .3674 | 18.85 | .6458 | .3715 | 17.53 | .6222 | .3328 | 18.61 | .6477 | .4023 |
| MASt3R | 20.92 | .5093 | .3745 | 19.21 | .4540 | .3803 | 20.92 | .5054 | .4749 | 19.49 | .6008 | .3032 | 16.91 | .5350 | .3337 | 19.49 | .5983 | .3637 | 18.80 | .6428 | .3703 | 17.68 | .6238 | .3319 | 18.76 | .6512 | .3991 |
| MiDaS | 20.89 | .5059 | .3815 | 19.05 | .4509 | .3813 | 20.84 | .5004 | .4795 | 19.35 | .5900 | .3222 | 16.82 | .5336 | .3343 | 19.34 | .5910 | .3672 | 18.53 | .6374 | .3798 | 17.64 | .6238 | .3333 | 18.32 | .6428 | .4039 |
| DINOv2 | 20.81 | .4946 | .3953 | 19.05 | .4495 | .3821 | 20.75 | .4924 | .4684 | 19.35 | .5896 | .3246 | 16.88 | .5359 | .3344 | 19.43 | .5943 | .3674 | 18.71 | .6432 | .3772 | 17.58 | .6214 | .3348 | 18.43 | .6443 | .4064 |
| DINO | 20.91 | .5054 | .3769 | 19.18 | .4545 | .3795 | 20.83 | .5010 | .4772 | 19.44 | .5982 | .3071 | 16.90 | .5394 | .3329 | 19.41 | .5952 | .3683 | 18.75 | .6416 | .3733 | 17.66 | .6233 | .3330 | 18.61 | .6467 | .4030 |
| SAM | 20.73 | .4913 | .3945 | 19.14 | .4556 | .3775 | 20.75 | .4949 | .4639 | 19.23 | .5899 | .3188 | 16.84 | .5346 | .3346 | 19.29 | .5915 | .3649 | 18.65 | .6421 | .3780 | 17.49 | .6217 | .3338 | 18.43 | .6425 | .4029 |
| CLIP | 20.80 | .4982 | .3913 | 19.28 | .4543 | .3807 | 20.88 | .4984 | .4773 | 19.41 | .5945 | .3098 | 16.96 | .5362 | .3358 | 19.37 | .5969 | .3695 | 18.92 | .6463 | .3729 | 17.81 | .6226 | .3316 | 18.75 | .6515 | .4052 |
| RADIO | 20.87 | .5100 | .3620 | 19.35 | .4550 | .3819 | 20.91 | .5067 | .5127 | 19.54 | .6105 | .2949 | 16.99 | .5373 | .3366 | 19.60 | .5955 | .3946 | 19.19 | .6612 | .3480 | 17.84 | .6225 | .3321 | 19.01 | .6574 | .4109 |
| MAE | 20.82 | .4992 | .3884 | 19.14 | .4572 | .3781 | 20.79 | .4995 | .4668 | 19.23 | .5909 | .3142 | 16.84 | .5355 | .3328 | 19.25 | .5914 | .3680 | 18.65 | .6395 | .3758 | 17.55 | .6234 | .3333 | 18.49 | .6451 | .4000 |
| SD | 20.71 | .4962 | .3985 | 18.89 | .4472 | .3839 | 20.59 | .4929 | .4672 | 19.08 | .5881 | .3185 | 16.63 | .5313 | .3389 | 19.06 | .5838 | .3660 | 18.69 | .6422 | .3772 | 17.32 | .6217 | .3374 | 18.55 | .6467 | .4020 |
| IUVRGB | 16.45 | .4075 | .5910 | 19.96 | .4797 | .3911 | 16.41 | .4187 | .5929 | 14.83 | .5069 | .4648 | 17.84 | .5568 | .3431 | 15.38 | .5362 | .4699 | 15.29 | .5846 | .4736 | 18.60 | .6526 | .3396 | 15.17 | .5948 | .4718 |

Table 1. **Quantitative Results.** We evaluate geometry and texture awareness of VFMs on NVS using **G**eometry, **T**exture, and **All** probing modes. Performance is ranked by color, from worst to best.

| | All Datasets (30 scenes) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Geometry** | | | **Texture** | | | **All** | | |
| Feature | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ | PSNR↑ | SSIM↑ | LPIPS↓ |
| $VGGT_{enc}$ | 19.75 | .6527 | .3163 | 18.10 | .5938 | .3292 | 19.71 | .6468 | .3868 |
| $VGGT_{dec}$ | 19.59 | .6467 | .3250 | 18.01 | .5936 | .3300 | 19.56 | .6417 | .3842 |
| DUSt3R | 19.66 | .6469 | .3247 | 18.01 | .5948 | .3285 | 19.58 | .6428 | .3775 |
| MASt3R | 19.67 | .6477 | .3228 | 18.08 | .5961 | .3276 | 19.66 | .6460 | .3754 |
| MiDaS | 19.55 | .6428 | .3319 | 18.00 | .5950 | .3288 | 19.42 | .6382 | .3801 |
| DINOv2 | 19.59 | .6406 | .3364 | 18.03 | .5951 | .3291 | 19.50 | .6388 | .3760 |
| DINO | 19.63 | .6452 | .3256 | 18.03 | .5961 | .3282 | 19.55 | .6427 | .3793 |
| SAM | 19.52 | .6392 | .3345 | 17.99 | .5966 | .3279 | 19.44 | .6379 | .3731 |
| CLIP | 19.61 | .6436 | .3331 | 18.10 | .5947 | .3289 | 19.50 | .6416 | .3832 |
| RADIO | 19.73 | .6513 | .3143 | 18.13 | .5944 | .3301 | 19.49 | .6407 | .4051 |
| MAE | 19.50 | .6408 | .3317 | 18.00 | .5967 | .3276 | 19.50 | .6404 | .3730 |
| SD | 19.44 | .6382 | .3350 | 17.81 | .5931 | .3325 | 19.32 | .6357 | .3760 |
| IUVRGB | 15.01 | .5422 | .4845 | 18.80 | .6191 | .3349 | 15.02 | .5670 | .4832 |

Table 2. **Average Results on all datasets.**