Ablation studies:

We first investigate the influence of the number of experts in the proposed MoE-based enhancement module. As shown in `Table 1` , we vary the number of experts from 1 to 8 while keeping all other settings fixed.

It can be observed that increasing the number of experts generally leads to consistent performance improvements on LOL v1, LOLv2-real, and VE-LOL-L datasets. Specifically, both PSNR and SSIM improve steadily as more experts are introduced.With 8 experts achieving the best overall results across all benchmarks. Therefore, we adopt 8 experts as the default configuration to balance performance and model capacity.

Table 1 Ablation study on the number of experts in the proposed MoE module.

Export	LOL v1		LOLv2-real		VE-LOL-L	
(Num)	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM
1	24.35	0.862	20.56	0.852	21.72	0.836
2	21.79	0.869	21.34	0.896	22.36	0.863
3	23.62	0.879	21.86	0.887	22.98	0.883
4	24.47	0.908	22.48	0.879	22.67	0.879
5	24.91	0.912	22.87	0.898	23.14	0.892
6	25.10	0.913	23.12	0.893	22.42	0.873
7	25.45	0.915	23.61	0.897	23.13	0.893
8	**25.85**	**0.921**	**23.91**	**0.903**	**23.26**	**0.899**

We further conduct ablation studies to evaluate the contributions of the proposed noise removal module and color correction module. As reported in Table Y, we test three variants: using only the color module, using only the noise module, and using both modules together.

When only one module is enabled, the performance is noticeably degraded compared to the full model, indicating that each module contributes complementary information. The noise module mainly improves structural fidelity by suppressing low-light noise, while the color module focuses on correcting color distortion and illumination imbalance.

Combining both modules achieves the best performance on all evaluated datasets, demonstrating that joint modeling of noise suppression and color correction is crucial for high-quality low-light image enhancement.

Table 2 ablation studies to evaluate the proposed two modules.

Noise module	Color module	LOL v1		LOLv2-real		VE-LOL-L	
		PSNR	SSIM	PSNR	SSIM	PSNR	SSIM

×	√	25.18	0.883				
√	×	25.25	0.903				
√	√	**25.85**	**0.921**	**23.91**	**0.903**	**23.26**	**0.899**