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(57) Abstract :
 Improving images in low light is difficult due to reduced visibility and increased noise. This invention presents a method that uses Multiscale Illumination Restoration (MIR), Retinex, and Dynamic Range Distillation (DRD) networks to effectively solve these problems. The proposed approach has three main components: a MIR network restores illumination across scales by enhancing it . visibility; Retinex mesh improves contrast and color reproduction; and the DRD network preserves details in dark and bright areas. The networks are trained on a dataset of low-light images with high-quality matches, and use supervised and self-supervised learning to minimize reconstruction and perceptual loss. Responsive training improves image realism. Validation involves evaluating metrics such as PSNR. Experimental results show significant improvements over existing methods. The combined properties of MIR, Retinex, and DRD networks offer opportunities for applications such as surveillance, photography, and autonomous driving in low light. As compared to these three networks MIR network is the best network for low light image enhancement and it shown a maximum PSNR value of 67.17.

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