X2HDR: HDR Image Generation in a Perceptually Uniform Space

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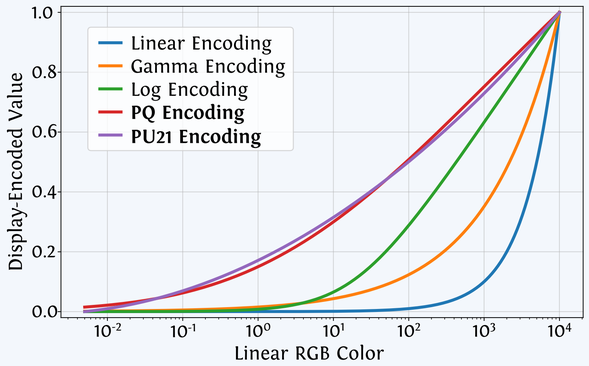
NEURAL INFORMATION PROCESSING SYSTEMS

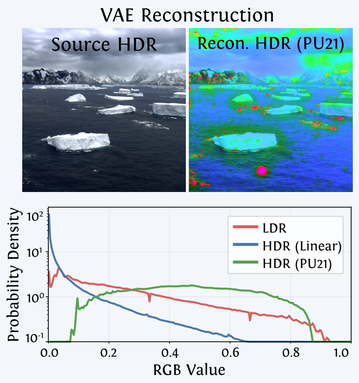
Paper + Code

Insight

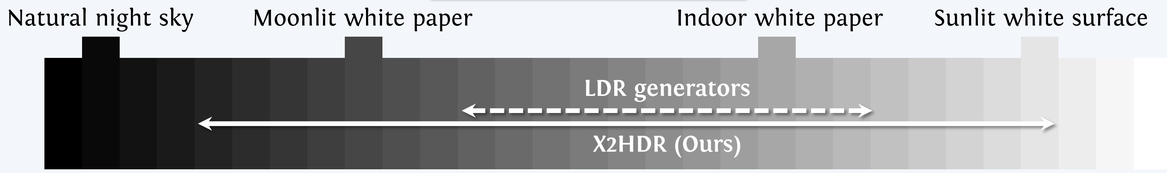
How can we adapt models pretrained on LDR content to generate HDR images and videos? **By using perceptually uniform encodings!**

1. **PU21 Transform:**
   $V = f_{\mathrm{PU21}}(L) = a(\log_2(L) - L_{\min})^2 + b(\log_2(L) - L_{\min})$
2. **Inverse PU21 Transform:** $L = f^{-1}_{\mathrm{PU21}}(V)$

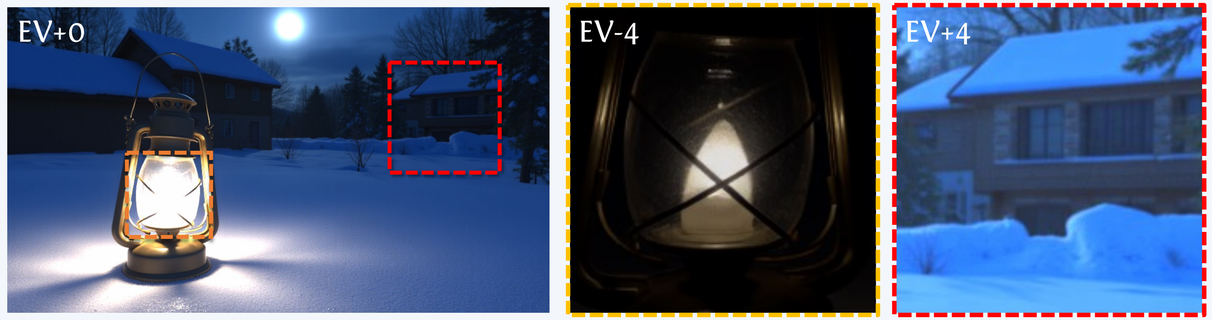




Dynamic Range

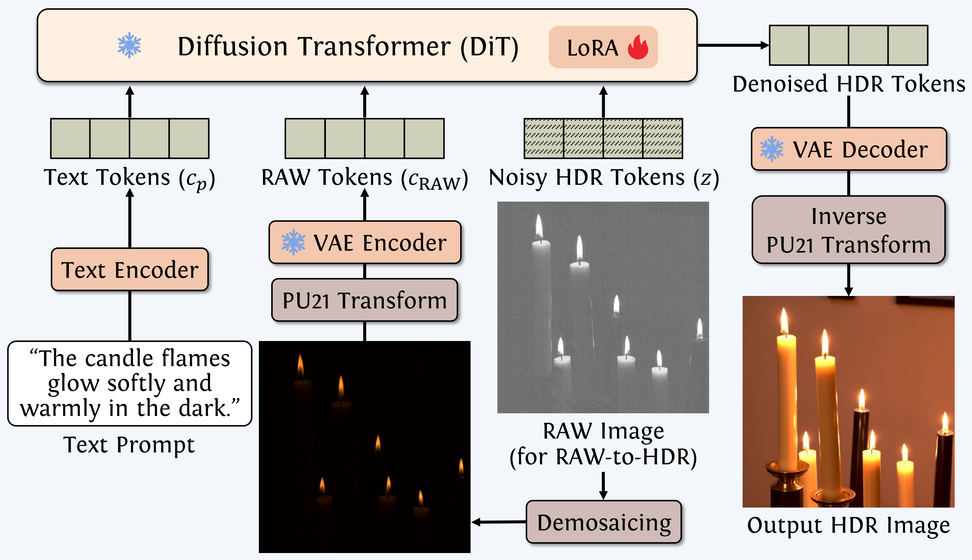


High-Dynamic-Range Image

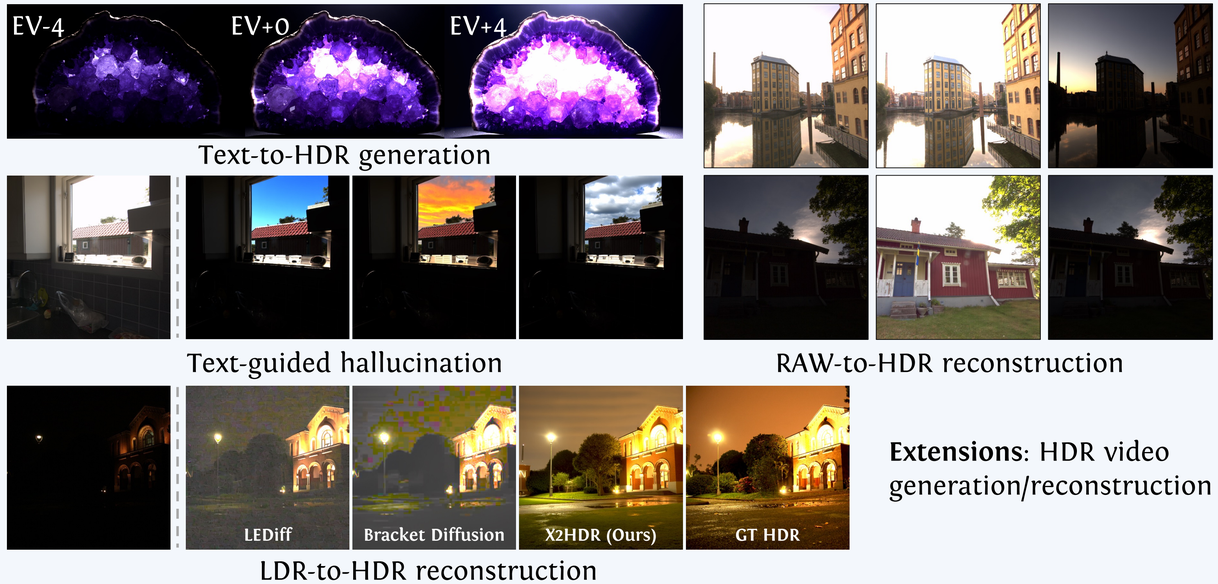


Generated HDR image | Highlight detail | Shadow detail

Pipeline



Results



Extensions: HDR video generation/reconstruction