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Shadow Removal using Diffusion

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Objective

Remove shadows from an image produced by an occluded light source and restoring the image contents

Adjusted ISTD Dataset

- Shadow image, shadow mask, and shadow-free image
- 1870 images triplet samples

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Adjusted ISTD Dataset

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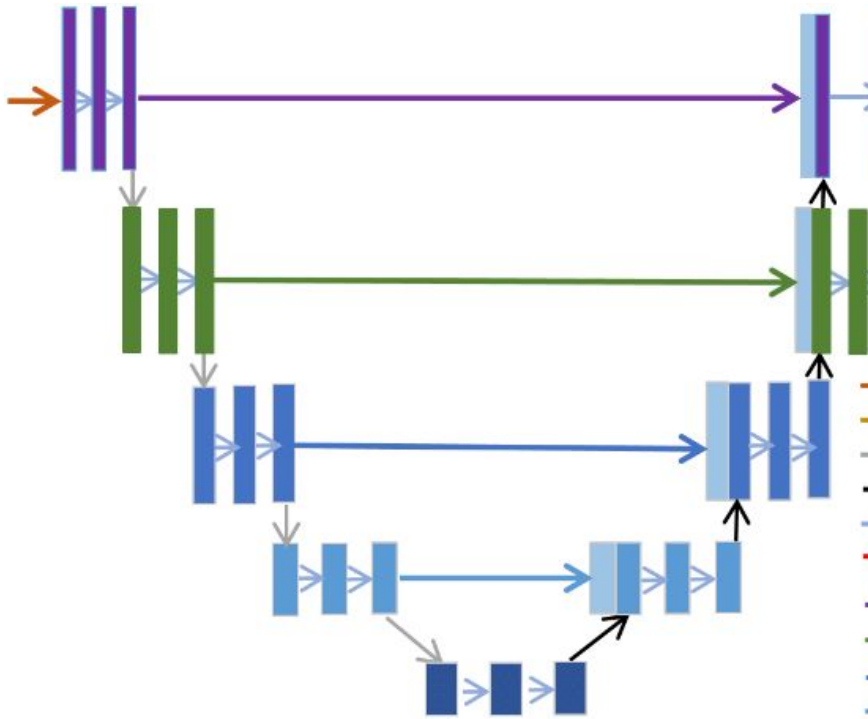
UNet Architecture

Number of parameters: 62 million

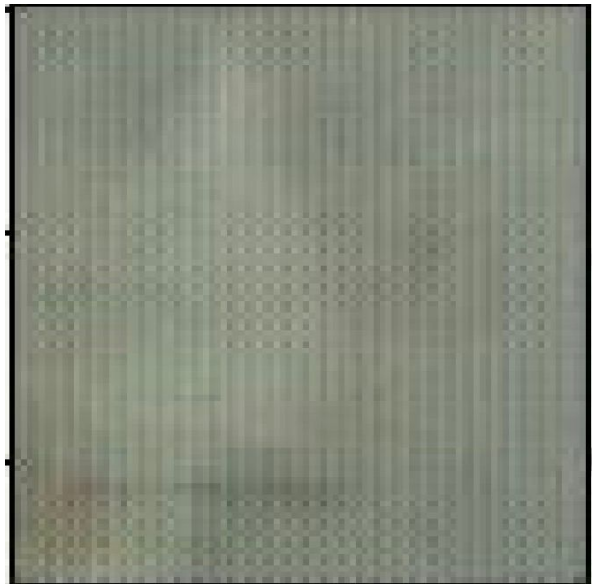


Details

- **Input** is a shadow-free image.
- Concatenated shadow image to the reverse diffusion process.
- **Loss** calculated against the shadow-free image.
- Allows to model the shadow without needing to pass additional information like shadow masks.
- **Able to distinguish** between self, soft and hard shadows.

Model with L1 loss

Model with L2 Loss



Model with L1 Loss + Chromaticity Consistency Loss

Code

https://github.com/akashsuper2000/shadow-removal-diffusion

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References

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