Robust Reflection Removal From Stereo Images With Affine Transformation

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Background

In many situations, it is required to take images through glass. In these situations, glass caused reflection of the object at camera's same side of glass will obstruct the scene we want to capture.

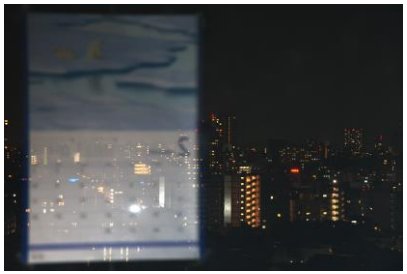
Objectives

Using two stereo images with reflection to generate one output image with no reflection.

Methods

Background registration is done by selecting matching points manaually. Reflection restration is difficult because the reflection is usually blured. Therefore, edge information is used in reflection registration. By matching the edge of reflection in two input image, the reflection transformation matrix can be generated. By using the transform matrix to reshape reflection, the process can get better robustness.

Input Left

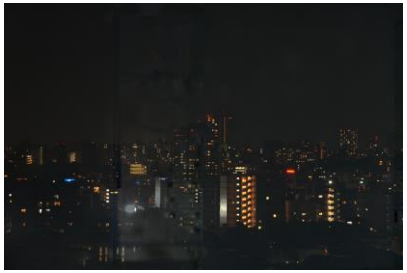


Input Right

Results and Discussions

Root-mean-square error (RMSE) is used to evaluate the difference between result and ground truth. Experimental results of reflection images manifest that the proposed method is effective and has better robustness against reflection and background's transformation and translation.

Previous Method
RMSE: 40.89



Proposed Method
RMSE: 24.26

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