Guided Image Filter for Detail Transfer

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Problem Description

Develop a solution using the Guided Image Filter to enhance image details while preserving natural illumination, particularly in flash and no-flash image pairs.

Background

ow-light photography limitations impact image quality, necessitating techniques for balanced detail and illumination. Enhance low-light photography by leveraging the strengths of both flash and ambient lighting through guided filtering for detail transfer.

Methods

Guided filtering technology is used to adjust the local mean and covariance by guiding the image to preserve and enhance image details.

steps

1. Input
2. Preprocessing
3. Guided Filter Processing
4. Combine detail
5. Postprocessing
6. Output:

Possible results

Enhanced Detail、Structural Preservation、Color Consistency、Edge Sharpness

References

G. Petschnigg, M. Agrawala, H. Hoppe, R. Szeliski, M. Cohen, and K. Toyama, “Digital photography with flash and no-flash image pairs,” in ACM SIGGRAPH, 2004.

Digital Image Processing, 4th edition ISBN number 9780133356724.

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導向濾波的原理以及其應用

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