High Quality Depth Refinement with Color Photometric Stereo

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A Thesis Submitted for the Degree of
MSc Erasmus Mundus in Vision and Robotics (VIBOT)

· 2017 ·

Abstract

The abstract will go here....

Research is what I'm doing when I don't know what I'm doing. . . .

Werner von Braun

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Acknowledgments

Leave this part until I finish the whole thesis

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You can reference other authors by using the *citecommand* [1] [2]. You are encouraged to use bib files and let bibtex do the job for you.

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Joint estimation of depth, reflectance and illumination for depth refinement

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3.1 Pre-Processing

The first step for most of the image processing tasks is to pre-process the initial input image. Due to the hardware limitation of modern inexpensive RGBD sensors, there usually exist holes with missing values on the depth images. Also, the depth data is often noisy so we need to do denoising and acquire a relative smooth surface.

In this section, we will describe respectively the basic depth inpainting and denoising algorithm that we use for our pre-processing.

3.1.1 Depth inpainting

Image inpainting itself is a very mutual area and has been widely applied as a useful tool for many modern computer vision applications, e.g, restore the damaged parts of ancient paintings, or remove unwanted texts or objects in a photography. Since the idea of image inpainting is to automatically replace the lost or undesired parts of an image with the neighbouring information by interpolating, we were inspired to apply it to fill in the missing depth information.

3.1.2 Depth denoising

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3.2.1 ddd

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- *LEDs have to be set up far away from each other.*
- *Natural illumination is a problem.*
- *Only feasible for the simple albedo cases*

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Appendix A

The first appendix

If you need to add any appendix, do it here... Etc.

Bibliography

[1] Witold Pokorski and Graham G. Ross. Flat directions, string compactification and three generation models. 1998.

[2] Dumitru Ghilencea and Graham G. Ross. Unification and extra space-time dimensions. 1998.