

A Novel Dodging Method for Colored Terrestrial LiDAR Point Clouds

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Terrestrial LiDAR (Light Detection and Ranging) has gained its popularity in three dimensional reconstructions for its fast speed and high accuracy. Besides detailed geometric information, current LiDAR systems can also obtain color information. The refined texture can be rapidly and automatically generated by these colored point clouds. However, the colors of the point clouds of the same targets from different scan stations may vary significantly due to the environmental effects, thus leading to unsatisfactory visual results of the 3D model texture. In this study, a new dodging method for colored point clouds has been proposed. This method takes the RGB values as three-dimensional coordinates and carries out color dodging through the 3D coordinates transformation. Compared with previous methods which often convert three-dimensional point cloud data into two-dimensional images, the proposed method can avoid the loss of precision due to data conversion and also improve the computing efficiency. The colored point clouds of an ancient pagoda were used to testify the efficiency of the proposed method. And the results indicated that the proposed method had effective improvement in the quality of the point clouds colors. The difference among the color intensity and saturation were greatly reduced. The texture generated by the dodging results showed perfect visual results.

Introduction

