Publications
Archives
Volumes
Full Text Search
Title and Author Search
Annals
ISPRS Journal
ISPRS Journal Geo-Info
ISPRS eBulletin
ISPRS Highlights
Book Series
Brochure
ISPRS Profile
Annual Reports
Related Publications
Booklets

Volume XXXIX-B3

STUDY ON THE FEASIBILITY OF RGB SUBSTITUTE CIR FOR AUTOMATIC REMOVAL VEGETATION OCCLUSION BASED ON GROUND CLOSE-RANGE BUILDING IMAGES

C. Li[1], F. Li[2], Y. Liu[3], X. Li[4], P. Liu[1], and B. Xiao[5]

[1] College of Urban and Environmental Science, Central China Normal University, Wuhan 430079, China
[2] Science and Technology on Information Systems Engineering Laboratory, National University of Defense Technology, Changsha 410073, China
[3] School of Remote Sensing and Information Engineering, Wuhan University, Wuhan 430079, China
[4] State Key Laboratory for Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Wuhan 430079, China
[5] Civil Engineering & Architecture School, Hubei University of technology, Wuhan 430068, China

Keywords: CIR, RGB, Vegetation occlusion, Removal, Segmentation, 3D reconstruction

Abstract. Building 3D reconstruction based on ground remote sensing data (image, video and lidar) inevitably faces the problem that buildings are always occluded by vegetation, so how to automatically remove and repair vegetation occlusion is a very important preprocessing work for image understanding, compute vision and digital photogrammetry. In the traditional multispectral remote sensing which is achieved by aeronautics and space platforms, the Red and Near-infrared (NIR) bands, such as NDVI (Normalized Difference Vegetation Index), are useful to distinguish vegetation and clouds, amongst other targets. However, especially in the ground platform, CIR (Color Infra Red) is little utilized by compute vision and digital photogrammetry which usually only take true color RBG into account. Therefore whether CIR is necessary for vegetation segmentation or not has significance in that most of close-range cameras don't contain such NIR band. Moreover, the CIE L*a*b color space, which transform from RGB, seems not of much interest by photogrammetrists despite its powerfulness in image classification and analysis. So, CIE (L, a, b) feature and support vector machine (SVM) is suggested for vegetation segmentation to substitute for CIR. Finally, experimental results of visual effect and automation are given. The conclusion is that it's feasible to remove and segment vegetation occlusion without NIR band. This work should pave the way for texture reconstruction and repair for future 3D reconstruction.

Conference Paper (PDF, 1109 KB)

Bibtex   EndNote   Reference Manager   XML