影像縫合技術研發及其應用

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摘　　要

本篇論文著眼於使用影像縫合技術來達成結合多張影像的目的以及提高影像縫合的效果。首先介紹用於求得兩張相鄰影像之間關係的傳統相機校正及影像處理技術，以及介紹兩種既有之影像分割技術。而在本論文中將提出創新之影像分割技術，藉由亮度正規化(Brightness normalization)、多重線段帶狀最佳切割(Band-type optimal partition based on multiple cut lines)以及影像混合(Image blending)之方法，成功的處理在影像縫合過程中形成之影像不連續情況，並應用在景色解析度增強(Scenery resolution enhancement)以及全景影像之重建(Panoramic construction)上。

A Novel Technique Applied to Image Stitching Process and its Applications

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ABSTRACT

This thesis focuses on the image stitching technique for combing numbers of images together and mainly contributes to the enhancement of image stitching performance. The conventional camera calibration and image processing methods are utilized to obtain the relationship between two neighbor images. Besides, two previous image stitching techniques are also introduced, which are limited to the requirement of exact overlap region between two neighbor images. To breakthrough such limitation, a novel image stitching technique is proposed to deal with the discontinuities happened while doing the general image stitching process by brightness normalization, band-type optimal partition based on multiple cut lines, and image blending methods. The experimental results show that the proposed image stitching technique can be successfully applied to scenery resolution enhancement and panoramic construction.