[打印本页] [关闭]

算法研究

构造全局背景的虚拟视点合成算法

陈坤斌,刘海旭,李学明

北京邮电大学数字媒体与设计艺术学院

摘要：

虚拟视点合成技术是三维电视、多视点视频等诸多领域中的关键技术。目前，基于深度图像的绘制(DIBR)受到了广泛的关注，而这一技术的主要难点在于如何降低映射过程中产生的空洞。为解决这个问题，提高合成图像的质量，同时降低所需参考视点的数量，本文提出了一种基于全局背景图像的虚拟视点合成算法。首先，我们利用视频序列的帧间互补信息生成一张全局背景图像，并以此为辅助图像，去填补从参考视点映射到虚拟目标视点的各帧图像。与传统方法相比，本文算法能使用空洞区域对应的真实像素进行填充，提高了图像的质量。最后，对填补后仍余留的空洞采用图像修复算法进行处理，得到最终的虚拟视点图像。实验结果表明，这个算法优于传统算法，并且只利用了一个参考视点。

关键词： 基于深度图像的绘制；视点合成；全局背景；图像融合

Virtual View Synthesis Using Generated Global Background

CHEN Kun-bin,LIU Hai-xu,LI Xue-ming

School of Digital Media & Design Arts, Beijing University of Posts and Telecommunications

Abstract:

Virtual view synthesis is the key technology for many applications such as 3D-TV and multi-view video. As an effective and mature technology, Depth Image Based Rendering (DIBR) has obtained much attention recently. However, DIBR also brings a new problem, namely disocclusion. Accordingly, how to reduce the disocclusion exposed during the projecting process has become one of the major challenges in DIBR. To solve this problem and improve the quality of synthesis image, as well as decrease the number of reference views which are desired during the synthesis process, a novel algorithm, namely, virtual view synthesis based on global background, is proposed in this paper. Firstly, the inter-frames correlation information in the video sequence is utilized to generate a global background image. Then the generated global background image would be treated as an auxiliary image to complement the images which are projected to the virtual view. In contrast to the existed approaches, the proposed algorithm fills the disocclusion areas with their true pixel value, which brings a higher image quality. Finally, the inpainting technology is applied to repair the remaining exposed regions. The experimental results indicate that the proposed algorithm performs better than the traditional ones. Moreover, the presented approach only depends on one reference view.

Keywords: Depth Image Based Rendering View synthesis Global background Image fusion

通讯作者：

作者简介：
作者Email: kunbinchen@gmail.com

参考文献：

本刊中的类似文章

文章评论

反馈人		邮箱地址	
反馈标题		验证码	3421