论文

基于视差信息的三维图像的计算机重构*

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摘要：

为了解决全景成像技术中观察者位于观察区域之外看到的图像会存在失真的问题,提出了一种基于视差信息的计算机重构3D视图技术. 利用3D场景中的物体点经过不同微透镜在元素图像中记录的视差信息,根据光学路径分析,对重构视图中的失真部分用其它元素图像中存在的同一物体点的匹配像素进行替代,从而得到无失真的3D视图. 该技术能够在更宽的观察区域内产生3D图像.

关键词： 全景成像　微透镜阵列　计算机重构　观察区域

Computational Reconstructed Three-dimensional Image Based on Disparity Information

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Abstract:

In order to resolve distorted image problem existing in integral imaging system when the observer is out of the viewing zone,a novel computational reconstruction technique based on disparity is proposed.According to projections of the object point in 3D scene through different micro-lenses and optic-ray tracing,the proposed technique replaced the distorted parts in reconstructed 3D image by mapped projection pixels of the same object point in other elemental images.And,the reconstructed 3D image is undistorted.The technique is capable of reconstructing 3D images with wide viewing zone.

Keywords: Integral imaging　Micro-lens array　Computational integral imaging reconstruction Viewing zone

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