

Lag Camera: Identifying Foreground and Background

Presented by Yi Xu

An image sequence through a real-world environment is the basis for a multitude of image-based applications. Recently, digital technology has enabled a variety of tools for capturing dynamic scenes and for extracting foreground objects from an image or video. Image-based rendering has proposed several methods but they do not focus on extracting moving objects.

A few automatic methods have also been proposed for segmenting foreground objects, but these approaches use complex and stationary camera sensors.

Yet other methods have been proposed for isolating a foreground object from the background in individual images and video sequences from stationary cameras.

We are interested in capturing an image sequence through a real-world environment using a moving camera and then to identify moving objects observed in the images and reconstructing the static background at the same time. This would enable us to composite novel image sequences different from the capture by removing, adding, or copying dynamic objects in the scene. Our approach captures space-time samples of a dynamic scene enabling initial conservative moving foreground object segmentation and then uses the redundant samples of the scene to rank and to iteratively refine the segmentation. Segmentation at occlusions and disocclusion boundaries is handled using a two-pass method.