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A contour tracking method of large motion object using optical flow and active contour model

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Abstract In this study, an object contour tracking method is proposed for an object with large motion and irregular shape in image sequence. To track object contour accurately, an active contour model was used, and the initial snake point of the next frame is set by defining feature points with changing curvature in the object tracked from the previous frame and calculating an optical flow at the location. Here, any misled optical flow due to irregular changes in shape or fast motion was filtered by producing a difference edge map from the previous frame, and as a solution to the energy shortage of objects with complex contour, a method of adding snake points by partial curvature was applied. Findings from experiments with real image sequence showed that the contour of an object with large motion and irregular shapes was extracted in a relatively precise way.

Keywords Object contour tracking · Optical flow · Active contour model · 2D-to-3D

1 Introduction

With the growing interest in the 3D videos, displays such as 3D TV and broadcasting technologies that make it possible to watch 3D videos have been developed and gaining popularity in a quick pace recently. However, despite ever-growing demands for the 3D contents, available 3D contents are very rare due to limited production time and money [6, 12]. The 2D-to-3D technology that converts existing 2D images to 3D videos has been

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