

Motion Computation Without Iterative WARPing (Yissum)

code: 10-2006-1016

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Faster and simpler video special effects editing

Categories	Computer science, Imaging, Computer graphics
Development Stage	Development completed
Patent Status	Granted US 7,894,528
Market Size	Video editing software market worth \$370 million

Highlights

- **Motion computation in video editing involves warping or manipulations of time in order to control the chronological time of events, including delaying or slowing down some activities while advancing or speeding up others.**
- **The dominant method for motion computation is the iterative motion analysis proposed by Lucas& Kanade (LK), used for both parametric motion computations and object tracking. The method requires substantial computational cost.**
- **Our method avoids the iterative image warping used in the original method by using a single iteration.**
- **The multiframe alignment overcomes the high complexity or restrictive assumptions (such as small motion or large memory) drawbacks of current multiframe alignment methods**
- **Experimental results show improvement in both complexity and accuracy**

Our Innovation

- **Implements LK with a computational cost of a single iteration without affecting the accuracy of the estimated motions. Combined with a multiframe alignment to obtain a fast and robust alignment.**

Key Features

- **Computer vision software for the extraction and analysis of information from images**
- **Appropriate to online and real time applications.**
- **Development Milestones**
- **Product ready for commercialization**

The Opportunity

- **Motion computation is used for applications in:**
- **Medical remote examination, security visual surveillance, robots, intelligent transportation, mixing real and virtual objects, moving object tracking, video analytics**

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