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## **INTELLIGENT RECONSTRUCTION SYSTEM VIDEO SEQUENCES**

The level of the modern computer technology development makes it possible to solve problems of great computational complexity, which include the processing of video sequences. Reconstruction of video sequences is relevant direction in connection with the increasing need of potential customers such as specialists in working with video archives, specialists in the field of cinema production and restoration, specialists in preparing TV programs for air, as well as specialists in the analysis of visual data obtained by various methods, and namely: aerial photography, satellite photography, laser ranging and others sensor systems. It should be noted that the market for commercial recovery systems and work with video sequences is quite wide and diverse. The Lowry Process system (USA), plugins for popular video sequence processing systems "Virtual Dub", "Sony Vegas", systems manufactured by Adobe (USA) are widely known. However, these systems require operator

intervention and control during all stages of the video sequence reconstruction process. In the developed complex, operator intervention is necessary only in the case of deleting a scene object that is not determined by the built-in expert system. The video sequence reconstruction software package can restore the scene background under artificially superimposed iso-151 images of computer graphics (logos of television channels, subtitles, etc.), distortion of the image due to damage to the storage medium (film scratches, etc.) and other small objects (image of person, wood, stone, etc. on some background).

Overlaid computer graphics images found in video series can be divided into the following types: - TV logos - small images, usually placed in one or more corners of the frame or at the edges of the frame; - titles - text areas with information about the filmmakers, can be placed anywhere in the frame; - subtitles - text areas near the upper or lower boundaries of the frame with periodically changing static text; - creeping line - text area near the top or bottom of the frame with moving text, the text moves according to generally accepted rules of reading and writing.

The whole variety of CG overlays can be to classify according to various criteria. Here are the most common signs: - by size: small (up to 5% of the screen), medium (up to 20% of the screen), large (up to 35% of the screen); - by location: angular, stretched along the horizontal border of the frame, stretched along the vertical border of the frame, in accordance with the "Substation Alpha "or otherwise;- by dynamics: static (the image is always constant), moderately changing (the image is not resized), fully dynamic (the image changes dimensions, within these dimensions another video sequence can be superimposed); - by duration: constant throughout the entire video sequence, periodically absent; - by chromaticity: monochrome, black and white, gradient, with a limited number of colors, full color; - by transparency: transparent and opaque; - by the presence of contour lines: framed, not framed; - by the presence of its own background: with the presence of its own background, without its own background.

The result of the software package is a reconstructed video sequence. However, the main disadvantage is that, in general, results can be assessed subjectively or through expert judgment. When working on the software package, a number of problems were solved: - a model was developed for reconstructing the artificially superimposed graphics by replacing the pixels of the artificially superimposed graphics with background pixels from the vicinity of the reconstruction area on the current and adjacent frames, taking into account the space-time displacement; - the method of overlaying texture fragments with position fluctuations has been improved by parameters, based on the coincidence of the boundaries of texture fragments; - an algorithm for image compensation in a limited spatial area was developed, based on replacing image pixels with background pixels or textons, found in the vicinity of the restoration region on the current frame and adjacent frames, taking into account the space-time offset.