Self-correcting and Self-tracking Algorithm for Detection of Articulate Objects and Human Hand Gestures in Video Signals

Technical Details

UCF scientists have developed a novel hand tracking algorithm and system which eliminates the false positives of past video tracking systems. It is also self-recovering and thus able to recuperate from failed tracking. This is possible since the algorithm is able to use information from frames in which the track was successful, to recover or reconstruct lost frames. In this algorithm, tracking is based on finger primitives and not on skin color. Thus, success or failure is not limited by skin color. Such an algorithm could be incorporated into current computer vision systems to accurately track various objects and hand gestures without suffering from the pitfalls of currently utilized systems.

Benefits

- Can detect subtle hand gestures
- System is self-initializing and self-correcting in order to prevent abrupt failure in diverse environments
- Algorithm is not dependent on skin color and requires no predetermination of the such
- Well suited for uncontrolled environments in which illumination and shadows can vary from one frame to the next
- Algorithm works even while no movement is present

Applications

- This technology can be utilized for a wide range of hand tracking and surveillance applications. Computer vision hardware and software developers could utilize this highly accurate algorithm in their current and future products for integration into innovative user interface systems, video gaming systems and automated surveillance technologies. The present invention is not limited to hands, but may also
be utilized to identify and detect articulate objects within one or many video signals.

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- US Patent 7,983,448 B1

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