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(57) Abstract :
A system (100) for visual motion-based object segmentation and tracking is disclosed. The system comprises interconnected modules designed to enhance computer vision accuracy and efficiency. A video input device (102) receives streams, followed by preprocessing (104) for noise reduction and quality enhancement. An object segmentation module (106) analyzes motion patterns in consecutive frames to accurately segment objects. The object tracking module (108) ensures reliable trajectory monitoring over time. Further refinement of object boundaries is achieved through the object refinement module (110). The object classification module (112) utilizes appearance and motion traits for accurate categorization. Real-time output visualization (114) provides dynamic feedback on segmented objects and their trajectories. This holistic approach caters to precise object recognition across industries like surveillance and robotics. The invention's versatility and advancement underscore its impact in computer vision.

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