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(57) Abstract :
Automatic Computer vision-based accident detection system through image processing and video surveillance using Deep Learning Algorithms ABSTRACT: Detecting accidents through video surveillance and computer vision has become a crucial but challenging endeavour. In this academic paper, the author proposes a novel method for identifying traffic accident causes. The aforementioned method employs Mask R-CNN for accurate object detection, and then an efficient centroid-based object tracking algorithm is applied to surveillance footage for optimal results. The probability of an accident is determined by analysing the changes in velocity and trajectory caused by a collision between two vehicles. The proposed framework provides a reliable method that, when applied to common CCTV surveillance footage of road-traffic, can simultaneously achieve a high Detection Rate and a low False Alarm Rate. This framework was tested under a variety of conditions, including low-light, high-light, rain, sleet, and snow, using the recommended dataset. This framework's achievement paves the way for the creation of real-time, general-purpose systems for detecting car accidents.

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