

Vehicle Detection and Tracking Using Deep Learning Techniques in Surveillance Image

Authors : Abe D. Desta

Abstract : This study suggests a deep learning-based method for identifying and following moving objects in surveillance video. The proposed method uses a fast regional convolution neural network (F-RCNN) trained on a substantial dataset of vehicle images to first detect vehicles. A Kalman filter and a data association technique based on a Hungarian algorithm are then used to monitor the observed vehicles throughout time. However, in general, F-RCNN algorithms have been shown to be effective in achieving high detection accuracy and robustness in this research study. For example, in one study The study has shown that the vehicle detection and tracking, the system was able to achieve an accuracy of 97.4%. In this study, the F-RCNN algorithm was compared to other popular object detection algorithms and was found to outperform them in terms of both detection accuracy and speed. The presented system, which has application potential in actual surveillance systems, shows the usefulness of deep learning approaches in vehicle detection and tracking.

Keywords : artificial intelligence, computer vision, deep learning, fast-regional convolutional neural networks, feature extraction, vehicle tracking

Conference Title : ICACSIS 2023 : International Conference on Advanced Computer Science and Information Systems

Conference Location : New York, United States

Conference Dates : August 10-11, 2023