

Vehicle Automation System

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Abstract: *In recent years, vehicle and pedestrian detection is a hot research topic in the field of computer vision and artificial intelligence, they are widely used in the fields of automatic driving safety and security and pedestrian analysis. Deep learning has made significant breakthroughs in vehicle and pedestrian detection application. With the development of deep learning, the vehicle and pedestrian detection method based on deep learning greatly improves the accuracy of the model. The Efficient Det algorithm is optimized and tailored for real time object detection the detectors with very high accuracy are computationally resource demanding but Efficient Det strikes a good balance between resource constraints and high accuracy. In this paper, we present the implementation and the comparative study followed by the results of tasks such as vehicle and pedestrian detection algorithm based on state of the art object detection algorithm Efficient Det which is based on Efficient Net architecture, especially for small vehicles detection. The validity of the algorithm is verified against Udacity's Self Driving Car dataset.*

Keywords: Efficient Net, Efficient Det, Kalman filter, Object Detection, Object Tracking, Vehicle detection, Pedestrian detection

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