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AUTOMATIC VEHICLE DETECTION FROM AERIAL IMAGES USING MACHINE LEARNING
TECHNIQUE

Abstract

Aerial surveillance plays a vital role in many real-time applications, especially, in traffic monitoring by providing precise statistics on traffic density, the average speed of vehicles. It enables traffic authorities to achieve highest levels of safety and efficiency in transport infrastructure to get to the intelligent transportation system. This paper proposes a novel approach for automatic vehicle detection from aerial images using cascaded Gaussian Mixture Model (GMM) and Support Vector Machine (SVM) algorithm. Military and Intelligence has been widely using Aerial Surveillance for observing enemy activities and the vehicle detection using aerial surveillance has a great future. The GMM based background removal technique eliminates the image background to achieve efficient color classification using SVM classifier. The performance of the proposed vehicle detection system evaluated using various metrics such as hit rate, accuracy and precision. Our proposed vehicle detection system gives better performance as compare to other state of art algorithms.

Keywords- Aerial Images, Vehicle Detection, Support Vector Machine, Gaussian Mixture Model