Abstract

This paper introduces an artificial neural network (ANN) based machine learning technique for on-road vehicle recognition and tracking that falls under the machine learning community. The feature extraction technique employed in this recognition and tracking system is multilevel Haar Wavelet transform which mainly focuses in separating low frequency components from high frequency components present in the image. This highlighted feature of Haar transform enables to increase the transmission speed of images and considerably aids in reducing the noise level. The neural network is trained by the images from database which has been subjected to feature extraction. The robust on-road vehicle recognition system is then
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integrated with a Kalman filter, which is extended to multiple vehicle tracking system to build complete vehicle recognition and tracking system and it has been evaluated on public domain vehicle images. This study reveals that this system yields high recalling rate, appreciable precision, and better localization effects on the recognized and tracked images.

References


Index Terms

Computer Science

Image Processing
Keywords
Machine Learning   Feature Extraction   Ann