World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:10, No:04, 2016

Enhancement Dynamic Cars Detection Based on Optimized HOG Descriptor

Authors : Mansouri Nabila, Ben Jemaa Yousra, Motamed Cina, Watelain Eric

Abstract : Research and development efforts in intelligent Advanced Driver Assistance Systems (ADAS) seek to save lives and reduce the number of on-road fatalities. For traffic and emergency monitoring, the essential but challenging task is vehicle detection and tracking in reasonably short time. This purpose needs first of all a powerful dynamic car detector model. In fact, this paper presents an optimized HOG process based on shape and motion parameters fusion. Our proposed approach mains to compute HOG by bloc feature from foreground blobs using configurable research window and pathway in order to overcome the shortcoming in term of computing time of HOG descriptor and improve their dynamic application performance. Indeed we prove in this paper that HOG by bloc descriptor combined with motion parameters is a very suitable car detector which reaches in record time a satisfactory recognition rate in dynamic outside area and bypasses several popular works without using sophisticated and expensive architectures such as GPU and FPGA.

Keywords : car-detector, HOG, motion, computing time
Conference Title : ICIAP 2016 : International Conference on Image Analysis and Processing
Conference Location : Boston, United States
Conference Dates : April 25-26, 2016