Pedestrian Detection using Machine Learning and its comparison with HOG and NMS

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***Abstract*—Pedestrian detection is an essential component of image and video surveillance system, on account of its provision of information with respect to the semantic aspects of understanding video footage. Its potential applications can be best stated in the field of automotive engineering, as well as improvement of safety systems. A plenitude of Car manufacturers offer this functionality as a part of their Advanced Driver Assistance System. In this work, the dataset, obtained from the MIT People's data, involves a set of images, that are then bifurcated into the obvious training set and testing set. Prior to the the division, appropriate image processing is performed in order to get the images to the requisite size and format. The training and testing set are then tested against the Machine Learning algorithms and the Histogram of Oriented Gradients (HOG) using Support Vector Machines. The results obtained are then compared with the responses of Pedestrian detection using Non Maximum Suppression Algorithm (NMS) in order to estimate how accurate the adopted pedestrian detection approach is.**

Keywords—Detection, Support Vector Machine, Non Maximum Suppression, HOG Descriptor, Machine Learning.