



PART-BASED PEDESTRIAN DETECTION AND TRACKING USING HOG-SVM CLASSIFICATION

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Abstract

Pedestrian detection is an essential and challenging task in any intelligent video surveillance system. Despite the challenges, pedestrian detection remains an active area of research in computer vision and a number of approaches have grown steadily in recent years. The major challenge is the development of reliable on-board pedestrian detection systems. This paper proposes a pedestrian detection system that uses a part-based approach. The system is based on a two-stage classifier. Candidates are detected using a Haar cascade classifier and then part-verification is done using the cascade object detector. The Histogram of oriented gradients is found for the whole input and it is combined with the classification done using Support Vector Machine (SVM). The location of the human is detected using a background subtraction algorithm. The detected human are traced by determining the centroid point of the blob and keeping track of its location. The tracking provides the identity of the human location and the location that the human has traversed. The robustness of this system relies on the combination of a HOG and SVM classification.

Keywords: Classifiers, Detectors, Pedestrian Detection, Part-Based Approach, Tracking.