

One of the core components of any visual surveillance system is object classification, where detected objects are classified into different categories of interest. Although in airports or train stations, abandoned objects are mainly luggage or trolleys, none of the existing works in the literature have attempted to classify or recognize trolleys. In this paper, we analyzed and classified images of trolley(s), bag(s), single person(s), and group(s) of people by using various shape features with a number of uncluttered and cluttered images and applied multi-frame integration to overcome partial occlusions and obtain better recognition results. We also tested the proposed techniques on data extracted from a well-recognized and recent data set, PETS 2007 benchmark data set [16]. Our experimental results show that the features extracted are invariant to data set and classification scheme chosen. For our four-class object recognition problem, we achieved an average recognition accuracy of 70%.