

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 analyze and classify images of trolleys, bags, persons, and groups of people by using various shape features. We conducted a set of experiments with a number of uncluttered (images collected from the Internet with clear background) and cluttered images (images segmented out from the background in real videos) using various criteria. Our experimental results show that the features extracted enable 100% recognition accuracy for the trolley category. For our four-class object recognition problem, we achieved an overall recognition accuracy of 83.3% and an average false positive rate of 6%.