

Accepted Manuscript

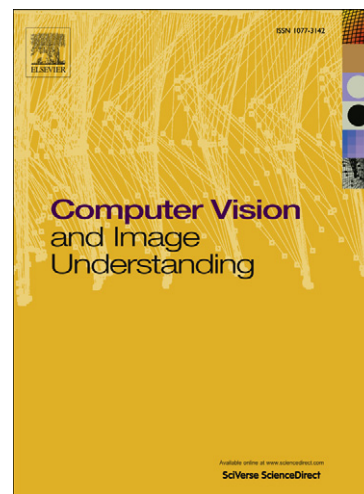
A Survey of Video Datasets for Human Action and Activity Recognition

Jose M. Chaquet, Enrique J. Carmona, Antonio Fernández-Caballero

PII: S1077-3142(13)00029-5
DOI: <http://dx.doi.org/10.1016/j.cviu.2013.01.013>
Reference: YCVIU 1962

To appear in: *Computer Vision and Image Understanding*

Received Date: 2 March 2012
Accepted Date: 30 January 2013



Please cite this article as: J.M. Chaquet, E.J. Carmona, A. Fernández-Caballero, A Survey of Video Datasets for Human Action and Activity Recognition, *Computer Vision and Image Understanding* (2013), doi: <http://dx.doi.org/10.1016/j.cviu.2013.01.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A Survey of Video Datasets for Human Action and Activity Recognition

Jose M. Chaquet^{a*}, Enrique J. Carmona^a, Antonio Fernández-Caballero^b

^a*Dpto. de Inteligencia Artificial, Escuela Técnica Superior de Ingeniería Informática, Universidad Nacional de Educación a Distancia, Madrid, Spain*

^b*Instituto de Investigación en Informática de Albacete, Universidad de Castilla-La Mancha, 02071-Albacete, Spain*

Abstract

Vision-based human action and activity recognition has an increasing importance among the computer vision community with applications to visual surveillance, video retrieval and human-computer interaction. In recent years, more and more datasets dedicated to human action and activity recognition have been created. The use of these datasets allows us to compare different recognition systems with the same input data. The survey introduced in this paper tries to cover the lack of a complete description of the most important public datasets for video-based human activity and action recognition and to guide researchers in the election of the most suitable dataset for benchmarking their algorithms.

Keywords: Human action recognition, human activity recognition, database, dataset, review, survey

1. Introduction

Human activity and action recognition systems aim to identify the actions and goals of one or more agents from a series of observations on each agent and a given context. An increasing interest in this type of systems has been reported so far [9, 66, 99, 171, 198, 199, 227]. Action recognition is one of the keys of several applications such as visual surveillance [76, 80, 93, 97, 169], video retrieval [62] and human-computer interaction [88], among others. Recognition of human activities can be considered as the last step of a set of previous tasks, such as image capture, segmentation, tracking, identification, and classification. Other surveys closely related to the action and activity recognition, such as motion analysis [8, 10, 36, 89, 170, 224], understanding dynamic scene activity [32], understanding human behaviour [162], classifying human actions [176] or human motion capture [132, 133] are also available.

Although in recent years, more and more video datasets dedicated to human action and activity recognition have been created, currently there is not a survey in this field. In fact, to our knowledge, there is only a short paper in the literature devoted to this subject [11]. Therefore, this survey tries to cover the lack of a complete description of the most important public datasets suited for video-based human action and activity recognition. The use of publicly available datasets has two main advantages. On the one hand, they save time and resources, that is, there is no need to record new video-sequences or pay for them, so researchers can focus on their particular algorithms and implementations. On the other hand, and this is even more important, the use of the same datasets facilitates the comparison of different approaches and gives insight into the abilities of the different methods. This survey is mainly focused on the video datasets that are composed by heterogeneous action sets, i.e., typical actions that can appear in a variety of situations or scenarios and are recorded by visible spectrum cameras. Nonetheless, there is some databases created for very specific action recognition, such as detection of abandoned objects, recognition

*Corresponding author. Tel.: +34 91 398 7301

Email addresses: jose.chaquet@gmail.com (Jose M. Chaquet^a), ecarmona@dia.uned.es (Enrique J. Carmona^a), antonio.fdez@uclm.es (Antonio Fernández-Caballero^b)

Download English Version:

<https://daneshyari.com/en/article/10359174>

Download Persian Version:

<https://daneshyari.com/article/10359174>

[Daneshyari.com](https://daneshyari.com)