Survey On Human Motion Recognition

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Abstract *- The human pose estimation can be improved over images based on estimation methods. It presents a method to estimate a sequence of human poses in unconstrained videos. The aims to do demonstrate by using temporal information. It is based on two main ideas: 'Abstraction' and 'Association' to impose the intra-and inter-frame body part constraints. The concept of abstraction body part is introduced to metaphysical combine the symmetric body parts and model them in tree based body part structure. the second method 'Association' the optimal tracklets are generated for each abstract body part ,in order to enforce the spatiotemporal constraints between body parts in adjacent frames***.**

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Keywords — *Human pose estimation ,motion detection, object detection.*

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I. INTRODUCTION

The Human pose evolution is pivotal for many computer vision applications, including human computer interaction, activity recognition and video surveillance. It is very challenging problem due to the large appearance variance, non –rigidity of the human body, different viewpoints, cluttered background, self occlusion etc.

The video based human pose estimation problem is a different manner, which makes solvable in polynomial time with an exact solution, and also effectively enforce the spatiotemporal constraints between body parts.

This is a very arduous problem, partly because human bodies are adaptable, presenting a wide range of pose and aspects, many including self-occlusion, and moderately because variations in clothing and background clutter deny a simple appearance model.

The human motion recognition is a systematic approach to understand and analyses the movement of people in camera captured content. It contains fields such as Biomechanics, Machine Vision, Image Processing, Artificial Intelligence and Pattern Recognition.

It is an integrative challenging field having grand applications with social, commercial, and educational benefits. A wide orbit of applications demands human motion recognition.

The applications are spread over domains like sports, medical, surveillance, content based video storage etc**.**

II. Related work

A work in human pose estimation have been reported in recent years. Early works are focused on human pose estimation and tracking in controlled environment there is also some important work using depth images . Single image based human pose estimation [1], [3], in unconstrained scenes has progressed dramatically in the last a few years; however, video based human pose estimation in unconstrained scenes is still in a very early stage, and some pioneer research [5], [6] has been conducted only recently.

Each point of this corresponds related to respective joint value in the main frame for human posture. Image or shape approaches are relatively represents motions using optical flow or using MEI or MHI. The Human motion can be either directly recognized from image sequences, or it can be done in a process of multiple layer. For image based human pose estimation in unconstrained scenes, most work has been focused on pictorial structure models [2] for quite long time and the performance has been promising. In [1], a flexible mixture-of-parts model was proposed to infer the pose configurations, which showed very impressive results**.**

III. Comparison table of human motion recognition system.

S.No	Author/year	Features & Datasets	Recognition method	Usage	Limitation
01	G.Johanson Year(2001)	2-d kinematic LED's attached on human body.Walking motion is Recorded in the dark & played on TV.	-	It proves that a human poses can recognize motion from 2D motion patterns.	Experiment was performed by attaching LED and recording result .Not worked on camera captured contents.
02	Bobick and Davis Year (2001)	MEI(Motion Energy Image)MHI(Motion History Image)	Single layered, space time trajectories.Curvature and template matching.	Proposed new representation of motion i. e, MHI and MEI.	The approach are very sensitive in the human pose activity .
03	Laptev and Lindeberg Year (2003)	Extracted spatio-temporal interest points are represented on XYT.Applied for walking in an outdoor scene.	Single layered space time local features Euclidean distance between two points in space-time.	Estimation pose of walking people and also detected motion in the presence of occlusions & dynamic background	Method is variant under Galilean transformation.Results may vary with change in motion direction.
04	Shechtman And Irani Year (2005)	Spatio temporal patches. Tested on video databases with video as a query for walking, with dives in a pool and ballet footage.	Single layered, space-time volume correlation.	Small video templates compared against large video sequence.	It does not handle any significant changes in scale and orientation.
05	Ryoo and Aggarwal Year (2006)	Context free grammer (CFG). Tested for 8 actions like approach ,depart, hug, punch, kick,push.	Context free grammer Checking.	The experiments show that the system understands continued and recursive composite actions & interactions.	Recognition rate for recursive interaction is still less.

06	Chaaraoui Year (2013)	Fusion of 20 skeleton joints data and silhouette shape divided into S radial bins.	For training Bag of key poses.	Skeleton approach has shown better results than silhouette.	Proposed approach is sensitive to action class.

III. CONCLUSION

The recognition of human action from video content is a significant area of research in computer vision, and has shown considerable progress in the domain. They are discussed in variant type of the recognition strategies classified according to the complexity of action.

The approaches have shown great success for the recognition of complicated actions and interactions. The Advances fields like Artificial Intelligence and Machine Learning needs to be applied for human motion recognition.In the human poses can recognition various type of human activity**.**

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