

## Human Motion Capture: New Innovations in the Field of Computer Vision

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**Abstract :** Human motion capture has become one of the major area of interest in the field of computer vision. Some of the major application areas that have been rapidly evolving include the advanced human interfaces, virtual reality and security/surveillance systems. This study provides a brief overview of the techniques and applications used for the markerless human motion capture, which deals with analyzing the human motion in the form of mathematical formulations. The major contribution of this research is that it classifies the computer vision based techniques of human motion capture based on the taxonomy, and then breaks its down into four systematically different categories of tracking, initialization, pose estimation and recognition. The detailed descriptions and the relationships descriptions are given for the techniques of tracking and pose estimation. The subcategories of each process are further described. Various hypotheses have been used by the researchers in this domain are surveyed and the evolution of these techniques have been explained. It has been concluded in the survey that most researchers have focused on using the mathematical body models for the markerless motion capture.

**Keywords :** human motion capture, computer vision, vision-based, tracking

**Conference Title :** ICCSE 2015 : International Conference on Computer and Software Engineering

**Conference Location :** Miami, United States

**Conference Dates :** March 09-10, 2015