

Title: Development of a 3D virtual reality representation of an Exoskeleton motion capturing system

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Abstract:

Motion capture (MoCap) systems are any technology that tracks and records movement of one or more objects, generally in terms of three-dimensional orientation and position. Various techniques exist for MoCap of deformable bodies [1]. Among those optical and inertial systems are widely used for variety of applications. Optical technologies [2] require two or more charged-couple device (CCD) cameras that are positioned to be facing and outwardly offset from the perimeter of a measurement area which is usually in the order of several square meters. However, some of the shortcomings include, high cost ($150k–$250k USD) [3], limited measuring space, low portability, long setup and calibration procedure [4]. With the advancement of Virtual Reality (VR) technologies and their affordability with consumer market devices. VR is increasingly being used for visualization, immersion, interaction and education [5]. In this context, MoCap systems and the 3D visualization of the captured data are being widely studied and used in computer graphics [6], medicine and rehabilitation, sports training and analysis and also by major entertainment industries. These systems are used in various applications such as digital games, animation of virtual characters for film and television, sports and labor training, gesture recognition, medical rehabilitation, among others. The primary objective of this research project is development of a data visualization demonstration for an exoskeleton-based motion capturing system.

Biography:

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