

Recovering and Analyzing 3-D Motion of Team Sports Employing Uncalibrated Video Cameras

Abstract

Techniques for human-motion recovery are applicable to a variety of areas, such as sports, dancing, virtual reality, and video-game production. The people who work in this area focus their attention on recovering information on the motion of individuals rather than groups of people. It is important to demonstrate the possibility of recovering descriptions of the 3-D motion in team sports, since such information is able to provide us with a variety of information on the relations among players. This paper presents a new experimental result on 3-D motion recovery from a team sport. The result was obtained by a non-rigid shape recovery technique based on images from uncalibrated cameras. The technique was applied to recovering the 3-D motion of the players in a mini-basketball game which was played in a gymnasium. Some attention is focused on the analysis of the players' motion. Satisfactory results were obtained.