



## MARKERLESS MEASUREMENT TECHNIQUES FOR MOTION ANALYSIS IN SPORTS SCIENCE

Yao Meng<sup>1,2</sup>, István Bíró<sup>2</sup>, József Sárosi<sup>2</sup>

<sup>1</sup>Doctoral School on Safety and Security Sciences, Óbuda University, Népszínház street 8, H-1081  
Budapest, Hungary

<sup>2</sup>Faculty of Engineering, University of Szeged, Mars tér 7, H-6724 Szeged, Hungary

### ABSTRACT

Markerless motion capture system and X-ray fluoroscopy as two markerless measurement systems were introduced the application method in sports biomechanical areas. An overview of the technological process, data accuracy, suggested movements, and recommended body parts were explained. The markerless motion capture system consists of four parts: camera, body model, image feature, and algorithms. Even though the markerless motion capture system seems promising, it is not yet known whether these systems can be used to achieve the required accuracy and whether they can be appropriately used in sports biomechanics and clinical research. The biplane fluoroscopy technique analyzes motion data by collecting, image calibrating, and processing, which is effective for determining small joint kinematic changes and calculating joint angles. The method was used to measure walking and jumping movements primarily because of the experimental conditions and mainly detect the data of lower limb joints.

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