Knee pain detection technology using magnetic resonance images

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Abstract

An automatic diagnosis for patellar tracking mechanism of knees is devel- oped in this paper. Because the computer has the property of accuracy, high speed, and low cost, the developed method of research for dynamic automatic diagnosis substitutes for the conventional static diagnosis. In this approach, an effective algorithm for fully automatic femur and patella segmentation for magnetic resonance images (MRI) through integrating edge detection and thresholding algorithms. In the experiment, each volunteer has eight different angles of knees image in axial and sagittal direction respectively. To measure kinematic parameters, three inclination angles are computed from eight land- marks identified from the patellar and femur in the axial MR images. This research could help doctor to diagnose function of patella in the clinical experiment.

Key words: Automatic diagnosis; Femur; Landmark points;
Magnetic resonance images; Patellar