The Research of Kinematic Patellar Tracking from MR Images for Knee Pain

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ABSTRACT

ABSTRACT Anterior knee pain (AKP) is a common pathological condition. One of the reasons causing pain of knee join is the excoriation of patella. Kinematic approaches adopting MR images have been regarded as a better method of knee pain detection than stationary approaches. This dissertation intends to use an automatic diagnosis based on kinematic patellar tracking for AKP detection. The kinematic patellar tracking uses a hybrid approach for extracting knee organs, where an edge-constrained wavelet enhancement followed by moment preserving segmentation is employed for conquering the soft tissue adhesion for extracting the femur and tibia from axial MR images, and a sliding window based moment preserving for resolving the segmentation difficulty associated with intensity non-uniformity in saggital MR images. The experiment results demonstrate the prominent of the calculated inclination angles in detecting AKP.

Keywords : MR images, ; automatic diagnosis based kinematic patellar tracking ; edge-constrained wavelet enhancement

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