

A New Method for Lumbar Herniated Inter-Vertebral Disc Diagnosis based on Image Analysis of Transverse Sections

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摘要

Abstract

This paper describes an image analysis method that uses automatic algorithms for the evaluation of herniation classification and geometry in the diagnosis of lumbar herniated inter-vertebral disc (HIVD). The method uses boundary approximation that uses a B-spline curve to approximate circle-like disc boundary and excludes the herniation from other normal parts of the disc boundary and, feature recognition that classifies the herniation, and herniation shape reconstruction that infers the 3D geometry from one or more transverse sections. This method can be used as a qualitative and quantitative tool for the diagnosis of lumbar HIVD using transverse sections