

Medical Image Classification Using Legendre Multifractal Spectrum Features

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Abstract : Trabecular bone structure is important texture in the study of osteoporosis. Legendre multifractal spectrum can reflect the complex and self-similarity characteristic of structures. The main objective of this paper is to develop a new technique of medical image classification based on Legendre multifractal spectrum. Novel features have been developed from basic geometrical properties of this spectrum in a supervised image classification. The proposed method has been successfully used to classify medical images of bone trabeculations, and could be a useful supplement to the clinical observations for osteoporosis diagnosis. A comparative study with existing data reveals that the results of this approach are concordant.

Keywords : multifractal analysis, medical image, osteoporosis, fractal dimension, Legendre spectrum, supervised classification

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