MULTISCALE EXTRACTION OF DIAGNOSTIC CONTENT APPLIED FOR CT BRAIN EXAMINATIONS

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Abstract
This paper presents the estimation methods of subtle hypodense changes of brain tissue in noncontrast eT scans. The purpose of reported research is improved detection of direct signs of hyperacute ischemic stroke. Proposed 1001 is nonlinear approximation in base of multiscale functions with respective thresholding. Different rationales for best basis selection were considered. Several local bases including wavelets, curvelets, contourlets and wedgelets were considered and characterized with a criterion of as fast as possible approximation error decay. Adaptive thresholding was suggested for defining of nonlinear approximation space for different image models. Procedures of estimation and extraction of diagnostic information were experimentally verified. Improved diagnosis of acute stroke cases was reported.

Keywords: ischemic stroke, image nonlinear approximation, multiscale image analysis, wavelets