
Two Computation Methods for Detecting Anisotropy in Image Texture

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Abstract

The presence of anisotropy (direction-dependency) in image texture may result in significant bias in estimated fractal dimension (D) values obtained using existing computation methods, which may affect the effectiveness of fractal techniques in the characterization and classification of image textures. We propose two computation methods to detect the presence of anisotropy in remote sensing imagery. The proposed methods are based on the well accepted walking-dividers and triangular prism concepts and they allow the user to compute D in the 0° , 45° , 90° , and 135° directions. The proposed methods have been tested on real images with different textural appearance. Our results show that the proposed methods appear generally effective in detecting directional bias in estimated D values. The implications of our findings for remote sensing applications of fractal techniques are also discussed.
