Abstract

Texture Characterization of Bone radiograph images (TCB) is a challenge in the osteoporosis diagnosis organized for the International Society for Biomedical Imaging. The objective of this paper is to distinguish osteoporotic cases from healthy controls on 2D bone radiograph images, using texture analysis. In this paper, we propose a Bone Texture Characterization method based on texture features (Segmentation-based Fractal Texture Analysis (SFTA), Basic Texture and Gabor filters) and compare these resulted features with HOG features for 2D bone structure evaluation. The classification experiments are tested with linear SVM and decision tree classifiers. The classification performance for HOG features are always higher than other texture features, and show excellent classification performance compared to other existing methods.
Histogram of Oriented Gradients and Texture Features for Bone Texture Characterization


Index Terms

Computer Science Pattern Recognition

Keywords

Texture, HOG, SFTA, Gabor filter, Bone, Osteoporosis, Classification.