

High-performance Feature Extraction Method for Texture Classification

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Abstract

In this paper, we propose a simple and efficient feature extraction method to improve the accuracy and speed of texture classification. Our approach is based on features boundary and can be used in multiple-classifier approaches. We split an image into some non-overlapped partitions and extract features from the sub-images. Considering all partitions, boundary of features makes a criterion for pre-classification in the first stage of proposed serial multiple classifier system (FB-ED). Euclidean distance is used as similarity measures for second classifier. Well-known Haralick's features for evaluation of our approach are used. To generalize our approach we employ images in the Brodatz and VisTex data sets. Experimental results have depicted FB pre-classifier makes classification more accurate and significantly faster than single stage classification on considered datasets.

Keywords

Texture analysis, texture classification, multiple classifiers, Haralick's feature, feature boundary

Biography

Alireza Akoushideh is currently a full time PhD candidate in Department of Electrical and Computer, University of Shahid-Beheshti, Tehran, Iran. He received the B.Sc. and M.Sc. degree in Electrical engineering from University of Guilan and Amirkabir University of Technology (Tehran Polytechnic) in 1997 and 2000, respectively. From 2001 until now, he is lecturer of Technical and Vocational University, Shahid-Chamran community college, Rasht, Iran. He has taught courses in FPGA, microprocessor and microcontrollers, computer architecture, and digital circuits. His research interests include machine vision, texture analysis, FPGA implementation, and parallel processing.

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