

A General Framework for Knowledge Discovery from Echocardiographic and Natural Images

Authors : S. Nandagopalan, N. Pradeep

Abstract : The aim of this paper is to propose a general framework for storing, analyzing, and extracting knowledge from two-dimensional echocardiographic images, color Doppler images, non-medical images, and general data sets. A number of high performance data mining algorithms have been used to carry out this task. Our framework encompasses four layers namely physical storage, object identification, knowledge discovery, user level. Techniques such as active contour model to identify the cardiac chambers, pixel classification to segment the color Doppler echo image, universal model for image retrieval, Bayesian method for classification, parallel algorithms for image segmentation, etc., were employed. Using the feature vector database that have been efficiently constructed, one can perform various data mining tasks like clustering, classification, etc. with efficient algorithms along with image mining given a query image. All these facilities are included in the framework that is supported by state-of-the-art user interface (UI). The algorithms were tested with actual patient data and Coral image database and the results show that their performance is better than the results reported already.

Keywords : active contour, Bayesian, echocardiographic image, feature vector

Conference Title : ICIKM 2016 : International Conference on Information and Knowledge Management

Conference Location : Zurich, Switzerland

Conference Dates : January 12-13, 2016