

Editorial

Dear Colleague:

Welcome to volume 12(6) of *Intelligent Data Analysis* – An international Journal.

The last issue of volume 12 consists of six articles. These articles mainly represent three topics, all related to the field of intelligent data analysis from the theoretical to the applied research. Of these six articles, the first four are related to clustering and its applications in different domains, and the last two are in data pre-processing and association rule mining.

In the first article, understanding the limitations of cluster validity indices, *Saitta et al.* introduce a new bounded index that is based on the ratio of standard cluster parameters. The new index is evaluated on several data sets and its performance is tested against six previously proposed validity indices. Overall, for hyper-spheroidal clusters, the proposed index is found better than existing ones. *Mirzaei et al.*, in the second article propose a new method for combining hierarchical clustering. Their approach involves converting the primary hierarchical clustering dendograms to matrices. These matrices are then aggregated into a final matrix with which the final clustering is formed. The authors evaluate the effectiveness of some well known dendogram descriptors and compare them to their proposed approach. Their results show that all descriptors work well and more accurate results are obtained using hierarchical combination of partitional clusterings. In the third article of this issue, *Al-Omari et al.*, introduce a new algorithm for clustering large data sets. Their algorithm utilizes image processing techniques to cluster a data set through mapping its points into a binary image map. The algorithm, that avoids exhaustive search, is compared with a number of previously developed clustering techniques. In general it produces similar quality results while it outperforms other algorithms in terms of execution time and storage requirements. In the fourth article, *Halkidi and Vazirgiannis*, discussing the limitations of traditional clustering algorithms for not being able to partition sets of spatially extended objects, propose a new clustering technique that takes into account geometric and topological properties of objects. Their approach, which consists of three steps of preprocessing, clustering and refinement, discovers clusters in the set of minimum bounding rectangles. Results of their evaluation are also presented in their article.

In the next part of this issue, *Fakhr Ahmad et al.* discuss the importance of identifying relations between attribute values and propose a new incremental method (called AD-Miner) to discover approximate dependencies in relational databases. Their approach avoids re-scanning databases, when a set of new tuples are added in dynamic applications. Their evaluation results that involves using several benchmark data sets, demonstrate that AD-Miner is more efficient than some of the existing algorithms. And finally, *Koh* in the last article of this issue, discusses the importance of detecting rare or sporadic association rules. This article provides some new results from using the proposed algorithm for discovering low support and high confidence association rules and includes a case study to obtain qualitative understanding in a real-world application.

In conclusion, with this issue, we finish our 12 years of publication. This volume of the IDA journal as usual included some special issues that came from different events, either conferences or

special workshops that were held recently. Ideas for publication of special issues, based on IDA related workshops or related topics are always welcome.

With our best wishes,

Dr. A. Famili
Editor-in-Chief