Editorial

Dear Colleague:

Welcome to volume 8(2) of the journal *Intelligent Data Analysis*!

This issue of the IDA journal consists of six articles, that are all related to the theoretical or applied research in Intelligent Data Analysis. The topics vary from Self-Organized Maps to attribute discretization, and Association Rules. This issue also includes two application papers that are related to the use of Neural Nets and Rough Sets in data analysis.

In the first article, Papadimitriou and Terzidis present a novel Self-Organizing Maps (SOM) technique that adapts its parameters in kernel space, grows dynamically up to a size defined with statistical criteria and is capable of incorporating a-priori information in the form of a supervised bias during a clustering process. They demonstrate that their algorithm overcomes the main drawbacks of most of the existing clustering methods. Pampalk, Widmer and Chan, in the second article of this issue, also introduce a novel (SOM) technique to reveal the inherent hierarchical structure of data. They introduce the "Tension and Mapping Ratio" to exploit specific characteristics of the SOM based on the topology preservation. They evaluate their approach using real data from the music domain. In the third article, Liu et al. describe a new method to convert continuous attributes into discrete ones. The method that is intended for pattern classifications in machine learning and data mining is in the scope of optimization problem. The main advantage of this method is its ability to find the global optimum. Their experimental results show the effectiveness of the algorithm for classification tasks when integrated with C4.5 and Naïve-Bayes classifiers. Srikumar and Bhasker, in the next article, present an algorithm for mining Maximal Frequent Sets to discover association rules in dense databases. Unlike traditional approaches, their algorithm involves a top-down strategy combined with bottom-up search. Their results show the advantages of their approach compared to a number of other known algorithms, especially in dense databases.

The last two articles of this issue are both application articles. Nguyen, Chan and Wilson present a neural network approach to estimate the future production performance of oil wells. Their multiple neural network models present a novel approach that combines a group of neural networks in which each component is responsible for predicting at a different time period. Their results showed that the multiple neural networks performed better than a single model when it is applied to long-term predictions. The last article of this issue, also an application, by Kumar, Agrawal and Joshi, is about combining the feature selection and feature extraction abilities of rough set data analysis. Their approach involves computing the significance of variables at various scales representing their time-series properties and removing irrelevant and redundant variables. Performance of their approach is illustrated using a stock performance modeling example.

And finally, preparation are underway to publish a special issue of IDA journal dedicated to some of the best papers from the fifth Intelligent Data Analysis symposium that was held in Berlin, Germany from August 28–30, 2003. This issue of IDA journal will be published in the second half of 2004. A new workshop, entitled: "Data Mining in Genomics and Proteomics: Current Trends and Future Directions" that has been organized by some of the Editorial Board members of the IDA journal, will be held during ECAI-2004 in Valencia, Spain. Details are available at: http://www.softwareresearch.ca/ecai-bio/index.html.

We are considering to evaluate the best papers of this workshop for a special Bioinformatics issue of IDA journal to be published in early 2005. In addition, planning to hold the IDA-2005 Symposium in Madrid in complete. Details will be available at the IDA Society home page at:

http://www.ida-society.org.

With our best wishes,

Dr. A. Famili
Editor-in-Chief