Editorial

Welcome to Volume 3(3) of Intelligent Data Analysis journal!

In the last decade, we have witnessed extensive and on-going research and development related to a wide variety of AI techniques, i.e. machine learning, fuzzy logic, neural nets, and genetic algorithms. In some cases, the results have been quite successful up to the point where commercial products have evolved from these research projects. Various conferences have been organized on these topics and several books, conference proceedings, and workshop reports have been published. These techniques are some of the basics of *Intelligent Data Analysis* (IDA) to which this journal is dedicated. Papers in each issue of IDA are representative of these efforts. Our goal is to continue the support for IDA community by publishing some of the best articles in this field.

Volume 3(3) of IDA consists of five articles that represent some of the above topics. In the first article, Chien and his colleagues describe the use of AI planning techniques to represent scientific image processing and automation of knowledge discovery and data mining of large data bases. They introduce two fielded systems that significantly reduce the knowledge discovery process. The results of evaluating these systems in image processing and production of aero-dynamic roughness maps are given. The second article by Hunniford and Hickey presents an artificial data generating system that makes use of simulated annealing. The system has the flexibility so that the users do not have to provide a complete set of examples and instead they can provide as few or as many data characteristics as they wish. Such a tool can be used to support data analysis and may be useful for testing and verification of the performance of concept learning algorithms.

Stephen Bay, in the third article, introduces an algorithm that combines multiple classifiers to improve the accuracy of nearest neighbor classifiers. The approach is based on using multiple nearest neighbor classifiers so that each one of them uses a random subset of features. The results of evaluating this algorithm show that it significantly outperforms other algorithms and it is fairly robust to irrelevant features. Fu's paper is about dimensionality optimization in which he introduces two approaches to find the best data subsets: (i) a heuristic methodology that integrates search methods and classifiers and (ii) a genetic algorithm based method. Considering that both number of variables and observation selections are important in the process of dimensionality optimization, the approach could be very useful in most data analysis applications. Experimental results that include a comparison of the two approaches show how effective they are.

Finally, in the last article, Nock and Jappy address the problem of using decision lists to build machine learning algorithms and present a new algorithm for learning simple decision lists. The experimental results they present show how efficient their approach is comparing to CN2 and C4.5.

IDA is not intended to publish only full length articles. We invite researchers to submit application papers, research notes and conference/workshop summaries. We appreciate your

feedback and we look forward to receive more and more quality papers from real world applications of data analysis techniques.

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