

## Preface

Modern management is based on decision-making processes supported by computational intelligence. There are many techniques available to managers to obtain fast answers to complex problems that incorporate operational data and analyse organization's historical data for planning of business activities. However, many of these techniques are still not user-friendly, they lack sufficient expert system data support, include subjective appraisal and intuition, and do not have deepened understanding of the dynamic interaction of information flows between different businesses.

This special issue on Computing Intelligence in Management is an attempt to contribute to overcome insufficiencies of the currently available decision-making support tools. The six papers presented in this special issue use modern computational intelligence paradigms for solving real world management problems.

OLAP management decision-making tool is popular among managers due to its user-friendly visualization abilities. Authors of the first paper suggest its improvement by using growing self-organizing maps. The proposed technique is more flexible data mining friendly that not only provides excellent feature mapping method but also helps to analyse data clusters at different levels of abstraction.

In the second paper authors propose a model for complex export pattern behaviour of multinational corporation subsidiaries in Malaysia using a Takagi-Sugeno fuzzy inference system learned using neural learning. Given the approximate value of strategic role elements and strategic size element, the model findings have justified the proposition in the modern literature that multinational corporation size and its strategic role are related to its export intensity.

Third paper presents theoretical and practical improvements to the intelligent database for construction cost estimating. Improvements were identified in two areas: cost modelling and estimating procedure. Cost modelling was enhanced by incorporating fuzzy logic in order to simulate expert reasoning and provide automated expert advice to the user. Estimating procedure was improved by including different data mining techniques. Proposed improvements were tested on a large construction project and proved to be useful in estimating practice.

Although significant attention has been paid in modern literature to use AHP method, little consideration has been given to its application for multicriteria decision-making based on biological processes. The fourth paper focuses on an AHP model established in the domain of strategic technology management. The model takes into consideration conservation and sustainable utilization of genetic resources for food and agriculture management. The empirical results demonstrate its usefulness for selection of conservation strategies.

In the fifth paper author points to options available within the relational model for implementing hierarchical data types. The object relational model is capable to define novel data types applying hierarchies characterized by having similar data fields at all levels. The hierarchies are applied using tables rather than customized tree structures.

The last paper proposes a new approach to understand dynamic interaction of information flow between the major international stock markets. The approach is based on a wavelet multiscaling method that decomposes a given time series on a scale-by-scale basis. The empirical results imply that different casual relationship over the different time scales is useful to take different views of stock markets.

Editors would like to thank Professor M. Sabandham (Chief Editor of International Journal of Neural, Parallel, and Scientific Computations.) for providing an opportunity to publish papers related to the *Computational Intelligence in Management*. We hope that findings from this special issue will help managers to improve their everyday business decision-making procedures.

Sonja Petrovic-Lazarevic and Ajith Abraham\*

November 2003

Guest Editors, Computational Intelligence in Management  
Special issue of International Journal of Neural, Parallel, and Scientific Computations

Department of Management, Monash University, Frankston 3199, Australia  
sonja.petrovic-lazarevic@buseco.monash.edu.au

\* Department of Computer Science, Oklahoma State University, USA  
ajith.abraham@ieee.org, <http://ajith.softcomputing.net>