Preface

Machine intelligence refers back to 1936, when Alan M Turing proposed, the idea of universal mathematics machine, a theoretical concept in the mathematical theory of computability. The desire for intelligent machines remained just an elusive dream until the first computer was developed. When the first computer appeared in the early fifties, we admired it as an artificial brain, and we thought that we are successful in creating a low level decision making cognitive machine. Researchers coined the term artificial intelligence and waited for many potential applications to evolve. Last few decades have seen a new era of artificial intelligence focussing on emulating humans, either in their behaviour or in their neurophysiology. Computational intelligence is now a well-established paradigm, where new theories with a sound biological understanding have been evolving constantly. Defining computational intelligence is not an easy task but in a nutshell, which becomes quite apparent in light of the current research pursuits, the area is heterogenous as being dwelled on by such technologies as neurocomputing, fuzzy systems, evolutionary computation, artificial life, intelligent agents, probabilistic reasoning, heuristics, hybrid systems and so on.

ISDA 2002, the Second International Workshop on Intelligent Systems Design and Applications, took place in Atlanta (USA), August 07-08, 2002. The theme of the workshop was computational intelligence and applications and some of the topics covered are listed below.

Artificial Neural Networks
Mathematical foundations of neural networks, architectures, learning theory (supervised/unsupervised/reinforcement learning), knowledge based networks, implementation issues of neural networks and applications.

Fuzzy Systems
Fuzzy logic and possibility theory, fuzzy expert systems, fuzzy system modelling and simulation, fuzzy systems and applications.

Evolutionary Algorithms
Genetic algorithms, evolution strategies, genetic programming, evolutionary programming, learning classifiers, hybrid evolutionary algorithms, evolutionary algorithms and applications.

Hybrid Soft Computing
Neural network- fuzzy systems, fuzzy systems- evolutionary algorithms, neural network - evolutionary algorithms, neural network- fuzzy systems- evolutionary algorithms and hybrid systems applications.

All Other Intelligent Systems
Intelligent agents (architectures, environments, adaptation/ learning and knowledge management), support vector machines, Bayesian networks and probabilistic reasoning, rough sets, intelligent CAD systems and intelligent optimization techniques.

The technical papers presented here correspond to talks delivered at the conference. ISDA'02 attracted 65 full papers from more than 23 countries and each paper was peer reviewed by two independent referees. These papers have been contributed by researchers from academic institutions as well as industries. After the evaluation process and based on the recommendation of the reviewers, 44 papers were finally included in the workshop program.

We would like to thank the authors, our technical sponsors and other organizations, for their support, which went well beyond our expectations. The workshop was technically co-sponsored by The World Federation on Soft Computing. We are deeply indebted to the members of the technical committee and all those in the community who helped us form a successful meeting. We would like to express our sincere gratitude to all the additional reviewers for the tremendous service by critically reviewing the papers within the stipulated deadline. Last but not the least, we would like to express our gratitude to our colleagues from School of Business Systems at Monash University, Australia, School of Electrical and Electronic Engineering at Nanyang Technological University, Singapore, School of Computer Science and Software Engineering, The University of Melbourne, Australia and Department of Mathematics, Morehouse College, Atlanta, USA for supporting us in the organization of ISDA'02.

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