Editorial

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This special issue of the *International Journal of Automation and Control* contains extended versions of 13 selected papers that were presented at the 8th International Conference on Intelligent Technologies (InTech'07), held in Sydney in December 2007. The conference's theme was on Intelligent Technologies in Robotics and Automation, a theme that reflects an increasing interest in real-world applications of intelligent technologies. InTech'07 also covered applications to business and finance management, biomedical engineering, control and power engineering, as well as papers describing recent advances in information technology.

The issue begins with an overview, by Kreinovich, on combinations of fuzzy, interval, and probability approaches, and on the applications of the resulting combined approaches to geoinformatics, bioinformatics, and engineering. Valls-Miró et al. propose a novel method using an optimised global path planner in conjunction with real-time sensor-based collision avoidance capabilities for mobile robots to ensure their safe navigation in uncertain dynamic environments. Lim and Furukawa present a calibration-free approach to deal with the problem of search and tracking, whereby probabilistic information from an image sensor can be utilised interchangeably between the 'search' and 'track' modes. A new thresholding method using colour-based histogram classification information for automatic identification of symbols and characters is proposed by Aboura, aimed to raise the successful rate in recognition of vehicles' licence plate. Maeda et al. present a novel approach using the equinumber principle to the problem of unified creation and reduction in adaptive vector quantisation for data compression, applied to image coding. Real-world demonstrations of intelligent technologies are given by Negnevitsky in power system crisis management and by Hung Tan Nguyen in biomedical engineering applications.

Several papers deal with control and information systems. Trinh et al. propose a new structure of a decoupled linear functional observer that can estimate a partial set of the state vector of two linear systems with unknown inputs using only the available output information. Deng and Molla present a multi-criteria analysis method for optimising the vendor selection process in solving the outsourcing problem, which covers information systems for data entry, transaction processing, back-office support, facility management, etc.

The remaining part of the issue is devoted to mathematical foundations of intelligent techniques. It starts with papers by Nguyen et al. on how to extract knowledge from an expert so that the expert's effort is minimal, and by Akama and Nantajeewarawat on how to generate a logical structure from specialisation systems that capture the common interrelations between various forms of extended atomic formulae and substitutions. Guan et al. present a strong law of large numbers of fuzzy set-valued random variables with slowly varying weights. The last paper, by Labuschagne, aims at calculating the join of two fuzzy set-valued martingales.

Each paper in this issue was reviewed by at least three specialists in the field. Guest Editors sincerely thank all the reviewers for their invaluable work. Support from the Centre of Excellence programme, funded by the Australian Research Council and the New South Wales State Government is gratefully acknowledged.

Finally, we would like to take the opportunity to thank Editor N.M. Mahalik, and the publisher for their help with this issue.