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## Foreword

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**Biographical notes:** Lakhmi C. Jain is a Professor of Knowledge-based Engineering in the Division of Information Technology, Engineering and the Environment, School of Electrical and Information Engineering, University of South Australia. His research interests include the creation of knowledge-based intelligent information and engineering systems incorporating neural nets, fuzzy systems, evolutionary computing, e-learning and multi-agent paradigms. He is also interested in the application of knowledge-based intelligent information and engineering systems in various fields including aviation, business, management, decision science, defence, education, engineering and science and health sciences.

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Artificial intelligence has changed the way we work, live, think and do business in our daily lives. The progress made in the development of intelligent paradigms is amazing. The vision of many great researchers which include people such as John McCarthy, Marvin Minsky, Nils Nilsson, Daniel Bobrow and Bruce Buchanan was a key in the successful development of artificial intelligence-based applications (Holmes, 2008). Their efforts are especially noteworthy when the limitations are considered. These limitations imposed by the early technology were formidable. They included the limitations of early computing, the limited computing power available and the limited availability of computers.

The invention of artificial neural networks (Jain et al., 1998; Fulcher and Jain, 2008; Jain, 1997; Jain and Jain, 1997) is great as they offer learning abilities in the machine. Fuzzy systems (Sato et al., 1997; Sato and Jain, 2006; Dumitrescu et al., 2000a) help in fusing human-like behaviour in a limited sense. Evolutionary computing paradigms are great as they help in solving many difficult problems (Dumitrescu et al., 2000b). Intelligent agents (Khosla et al., 2005; Resconi and Jain, 2004; Jain et al., 2002a) can act on behalf of humans to accomplish the required tasks.

Intelligent paradigms have been used successfully in many application areas such as healthcare (Sordo et al., 2008; Yoshida et al., 2007; Teodorescu et al., 1998; Schmitt et al., 2002), decision-making (Phillips-Wren et al., 2008; Phillips-Wren and Jain, 2005), education (Jain et al., 2007, 2002b; Ghaoui et al., 2005; Jain, 2000; Jain and Garud, 1994; Jain and Bowden, 1994; Rowland and Jain, 1994), robotics (Jain and Fukuda, 1998), manufacturing (Jarvis et al., 2008) and so on. However, I do believe that there is still a need to develop reasoning-based intelligent paradigms which can help in mimicking human behaviour in machines in a limited but impressive way. The *International Journal of Reasoning-based Intelligent Systems (IJRIS)* is an

excellent initiative by Professor Kazumi Nakamatsu. I admire his vision and wish *IJRIS* success.

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