Editorial

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Biographical notes: Hideki Katagiri is an Associate Professor of Hiroshima University, Japan and is working with the Department of Artificial Complex Systems Engineering, Graduate School of Engineering, Hiroshima University. He received his BE, ME and DE in Engineering at Osaka University in 1995, 1997 and 2000, respectively. His research and teaching activities are in the areas of operations research and soft computing, especially, fuzzy stochastic optimisation, multiobjective programming, data analysis, agent-based simulation analysis. He is the author or co-author of about seventy papers and two edited books in English. He serves on the Chair of IEEE SMC Hiroshima Chapter and an Editorial Board Member of several international journals.

Takumi Ichimura has been an Associate Professor with the Department of Management and Information Systems, Prefectural University of Hiroshima. He received his ME and DE in Engineering from the Toin University of Yokohama in 1994 and 1997, respectively. His current research interests include neural networks, evolutionary computation, and immune system and their applications in medical informatics, and cognitive sciences. He serves as the Vice Chair of IEEE SMC Hiroshima Chapter.

The purpose of this special issue is to collect excellent articles on new challenges in computational intelligence and applications. The papers in this issue are extended versions of selected papers presented at the Fourth International Workshop on Computational Intelligence and Applications (IWCIA2008), held on 10 and 11 December 2008 in Hiroshima, Japan, following those of 2005 in Hiroshima, 2006 and 2007 in Okayama.

IWCIA, sponsored by the IEEE SMC Hiroshima Chapter, aims to bring people from academia, research laboratories and industry and to offer a collaborative platform to

address the emerging issues of the computational intelligence and applications and to encourage interactions across the borders of related disciplines.

High quality technical papers were presented at the workshop by the authors, from which the following five papers were carefully selected by the program committee for this special issue.

- 'Portfolio selection problems with normal mixture distributions including fuzziness' by Takashi Hasuike and Hiroaki Ishii

- 'Rule acquisition for cognitive agents by using estimation of distribution algorithms' by Tokue Nishimura and Hisashi Handa

- 'Constitution of Ms.PacMan player with critical-situation learning mechanism' by Hisashi Handa

- 'Non-linear integer programming based on particle swarm optimisation combining diversification and intensification' by Takeshi Matsui, Masatoshi Sakawa, Kosuke Kato and Koichi Matsumoto

- 'An approximate solution method based on tabu search for k-minimum spanning tree problems' by Hideki Katagiri, Tomohiro Hayashida, Ichiro Nishizaki and Jun Ishimatsu.

Each paper presents an ambitious but realistic challenge, based on the authors' own expertise. We do hope that the journal audience will enjoy reading this special issue.

As a concluding note, we would like to thank the authors for providing excellent papers and timely extended revisions. Thanks are due to all the reviewers, who help us to shape this special issue. Finally, we gratefully acknowledge the support of Professor Lakhmi C. Jain and Professor Mika Sato-llic, the Honorary Editor and Editor-in-Chief of this journal, respectively, for giving us the opportunity to compile this special issue.