

Panagiotis Chountas, Ilias Petrounias and Janusz Kacprzyk (Eds.)

Intelligent Techniques and Tools for Novel System Architectures

Studies in Computational Intelligence, Volume 109

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Intelligent Techniques and Tools for Novel System Architectures

With 192 Figures and 89 Tables

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Foreword

The purpose of this volume is to foster and present new directions and solutions in broadly perceived intelligent systems. The emphasis is on constructive approaches that can be of utmost important for a further progress and implementability.

The volume is focused around a crucial prerequisite for developing and implementing intelligent systems, namely to computationally represent and manipulate knowledge (both theory and information), augmented by an ability to operationally deal with large-scale knowledge bases, complex forms of situation assessment, sophisticated value-based modes of reasoning, and autonomic and autonomous system behaviours.

These challenges exceed the capabilities and performance capacity of current open standards, approaches to knowledge representation, management and system architectures. The intention of the editors and contributors of this volume is to present tools and techniques that can help in filling this gap.

New system architectures must be devised in response to the needs of exhibiting intelligent behaviour, cooperate with users and other systems in problem solving, discovery, access, retrieval and manipulation of a wide variety of “data” and knowledge, and reason under uncertainty in the context of a knowledge-based economy and society.

This volume provides a source wherein academics, researchers, and practitioners may derive high-quality, original and state-of-the-art papers describing theoretical aspects, systems architectures, analysis and design tools and techniques, and implementation experiences in intelligent systems where information and knowledge management should be mainly characterised as a *net-centric infrastructure riding on the fifth wave of “distributed intelligence.”*

An urgent need for editing such a volume has occurred as a result of vivid discussions and presentations at the “IEEE-IS’ 2006 – The 2006 Third International IEEE Conference on Intelligent Systems” held in London, UK, at the University of Westminster in the beginning of September, 2006. They have

triggered our editorial efforts to collect many valuable inspiring works written by both conference participants and other experts in this new and challenging field.

LONDON
2007

P. Chountas
I. Petrounias
J. Kacprzyk

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