

Andreas Tolk and Lakhmi C. Jain (Eds.)

Complex Systems in Knowledge-based Environments:
Theory, Models and Applications

Studies in Computational Intelligence, Volume 168

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ISBN 978-3-540-88074-5

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Complex Systems in Knowledge-based Environments: Theory, Models and Applications

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ISBN 978-3-540-88074-5

e-ISBN 978-3-540-88075-2

DOI 10.1007/978-3-540-88075-2

Studies in Computational Intelligence

ISSN 1860949X

Library of Congress Control Number: 2008935501

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Typeset & Cover Design: Scientific Publishing Services Pvt. Ltd., Chennai, India.

Printed in acid-free paper

9 8 7 6 5 4 3 2 1

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This Book Is Dedicated to Our Students

Preface

The tremendous growth in the availability of inexpensive computing power and easy availability of computers have generated tremendous interest in the design and implementation of Complex Systems. Computer-based solutions offer great support in the design of Complex Systems. Furthermore, Complex Systems are becoming increasingly complex themselves. This research book comprises a selection of state-of-the-art contributions to topics dealing with Complex Systems in a Knowledge-based Environment. Complex systems are ubiquitous. Examples comprise, but are not limited to System of Systems, Service-oriented Approaches, Agent-based Systems, and Complex Distributed Virtual Systems. These are application domains that require knowledge of engineering and management methods and are beyond the scope of traditional systems.

The chapters in this book deal with a selection of topics which range from uncertainty representation, management and the use of ontological means which support and are large-scale business integration. All contributions were invited and are based on the recognition of the expertise of the contributing authors in the field. By collecting these sources together in one volume, the intention was to present a variety of tools to the reader to assist in both study and work. The second intention was to show how the different facets presented in the chapters are complementary and contribute towards this emerging discipline designed to aid in the analysis of complex systems. The common denominator of all of the chapters is the use of knowledge-based methods, and in particular ontological means. The chapters are categorized into two parts which are the Theoretical Contributions and the Practical Applications.

We believe that this volume will help researchers, students, and practitioners in dealing with the challenges encountered in the integration, operation, and evaluation of Complex Systems.

We are grateful to the contributors and the reviewers for their time, efforts and vision. We would like to express our sincere thanks to the editorial staff of Springer-Verlag publisher and Scientific Publishing Services Private Limited for their excellent support.

Editors

Andreas Tolk
Lakhmi C. Jain

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