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Computational Intelligence for Engineering Systems

Emergent Applications



Springer

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Preface

Computational Intelligence can be seen as a science, as it seeks, studies and tries to understand the phenomenon of intelligence, and as a branch of engineering, as it seeks to build tools to assist and support human intelligence. Providing computers with intelligence that might be useful to human activity is the major goal of Computational Intelligence research projects.

The complexity of current computer systems has led software engineering, distributed systems and management communities to look for inspiration in diverse fields, such as robotics, artificial intelligence or biology, in order to find new ways of designing and managing systems. Looking at processes that can be found in nature, it is possible to try to understand and mimic them to solve complex problems on different domains.

This book addresses, in a single volume, contributions in Emergent Applications of Computational Intelligence for Engineering Systems, selected from the works presented at the International Symposium on Computational Intelligence for Engineering Systems (ISCIES'09) held in the School of Engineering of the Polytechnic of Porto, Portugal, November 19-20, 2009.

ISCIES'09 provided a forum to discuss the state-of-the-art, recent research results and perspectives of future developments with respect to the symposium themes. ISCIES'09 provided a stimulating discussion for scientists, engineers, educators, and students to disseminate the latest research results and exchange information on emerging areas of research in the field of Computational Intelligence. ISCIES'09 also aimed at identifying new Computational Intelligence technologies and emergent areas for intelligent systems applications.

Sensors and Smart Services, Decision Support Systems, Ambient Intelligence, Intelligent Energy Systems, Intelligent Manufacturing Systems, Intelligent Systems Inspired by Nature, Computational Creativity, Autonomous Mental Development, Bioinformatics, Bioengineering and Autonomic Computing are some of the themes that are addressed in the present volume.

We would like to thank all referees and other colleagues who helped in the edition process of this book. Our thanks are also due to all participants for their contributions to the ISCIES'09 Symposium and to this book.

Finally, the editors would like to acknowledge FCT (Portuguese Science and Technology Foundation) for its support to GECAD - Knowledge Engineering and Decision Support Group Unit activities and initiatives.

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