

Lecture Notes on Data Engineering and Communications Technologies

Volume 149

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Sergii Babichev · Volodymyr Lytvynenko
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Lecture Notes in Data Engineering, Computational Intelligence, and Decision Making

2022 International Scientific Conference
“Intellectual Systems of Decision-Making
and Problems of Computational Intelligence”,
Proceedings

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ISSN 2367-4512

ISSN 2367-4520 (electronic)

Lecture Notes on Data Engineering and Communications Technologies

ISBN 978-3-031-16202-2

ISBN 978-3-031-16203-9 (eBook)

<https://doi.org/10.1007/978-3-031-16203-9>

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to Springer Nature Switzerland AG 2023, corrected publication 2023

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

Data engineering, collecting, analyzing and processing information are the current directions of modern computer science. Many areas of current existence generate a wealth of information which should be stored in a structured manner, analyzed and processed appropriately in order to gain the knowledge concerning investigated process or object. Creating new modern information and computer technologies for data analysis and processing in various fields of data mining and machine learning creates the conditions for increasing the effectiveness of the information processing by both the decrease of time and the increase of accuracy of the data processing.

The international scientific conference “Intellectual Decision-Making Systems and Problems of Computational Intelligence” is a series of conferences performed in East Europe. They are very important for this geographic region since the topics of the conference cover the modern directions in the field of artificial and computational intelligence, data mining, machine learning and decision making. The aim of the conference is the reflection of the most recent research in the fields of artificial and computational intelligence used for solving problems in a variety of areas of scientific research related to computational intelligence, data mining, machine learning and decision making.

The current ISDMCI’2022 Conference held in Rivne, Ukraine, from June 14 to 16, 2022, was a continuation of the highly successful ISDMCI conference series started in 2006. For many years, ISDMCI has been attracting hundreds or even thousands of researchers and professionals working in the field of artificial intelligence and decision making. This volume consists of 39 carefully selected papers that are assigned to three thematic sections:

Section 1. Analysis and Modeling of Hybrid Systems and Processes:

- Methods and tools of system modeling under uncertainty
- Problems of identification of hybrid system, models and processes
- Modeling of the operating hybrid systems
- Modeling of dynamic objects of various nature
- Time series forecasting and modeling
- Information technology in education

Section 2. Theoretical and Applied Aspects of Decision-Making Systems:

- Decision-making methods
- Multicriterial models of decision-making under uncertainty
- Expert systems of decision-making
- Methods of artificial intelligence in decision-making systems
- Software and tools for synthesis of decision-making systems
- Applied systems of decision-making support

Section 3. Data Engineering, Computational Intelligence and Inductive Modeling:

- Inductive methods of hybrid systems modeling
- Data engineering
- Computational linguistics
- Data mining
- Multiagent systems
- Neural networks and fuzzy systems
- Evolutionary algorithm and artificial immune systems
- Bayesian networks
- Fractals and problems of synergetics
- Images recognition, cluster analysis and classification models

We hope that the broad scope of topics related to the fields of artificial intelligence and decision making covered in this proceedings volume will help the reader to understand that the methods of computational intelligence, data mining and machine learning are important elements of modern computer science.

June 2022

Oleh Mashkov
Yuri Krak
Sergii Babichev
Viktor Moshynskiy
Volodymyr Lytvynenko

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