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Data Stream Mining & Processing

Third International Conference, DSMP 2020
Lviv, Ukraine, August 21–25, 2020
Proceedings

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ISSN 1865-0929 ISSN 1865-0937 (electronic)
Communications in Computer and Information Science
ISBN 978-3-030-61655-7 ISBN 978-3-030-61656-4 (eBook)
<https://doi.org/10.1007/978-3-030-61656-4>

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

Preface

Collecting, analyzing, and processing information, including big data, are one of 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, create the conditions for increasing effectiveness of the information processing by both the decrease of time and the increase of accuracy of the data processing.

The IEEE International Scientific Conference on Data Stream Mining & Processing (DSMP) 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 developments in the fields of artificial and computational intelligence used for solving problems in a variety of areas of scientific researches related to data mining, machine learning, big data processing, and decision making.

The third edition of the IEEE DSMP 2020 conference was held in Lviv, Ukraine, during August 21–25, 2020. The conference was held virtually due to the COVID-19 pandemic. DSMP 2020 was a continuation of the highly successful DSMP conference series started in 2016. The last DSMP 2016 and 2018 conferences had attracted hundreds and possibly thousands of researchers and professionals working in the field of artificial intelligence and decision making.

This volume consists of 36 carefully selected papers out of 134 submissions, that were assigned to four thematic sections:

Section 1. Hybrid Systems of Computational Intelligence

Information processing systems which combine different approaches of computational intelligence, for example, artificial neural networks which are learnt by evolutionary algorithms, neuro-fuzzy systems, wavelet-neuro-fuzzy systems, neuro-neo-fuzzy systems, particle swarm algorithms, evolving systems, deep learning, etc.

Section 2. Machine Vision and Pattern Recognition

Video streams that are fed from video cameras in an online mode under environment uncertainty and variability conditions.

Section 3. Dynamic Data Mining & Data Stream Mining

Data mining problems (classification, clustering, prediction, identification, etc.) occur when information is fed in an online mode in the form of data streams.

Section 4. Big Data & Data Science Using Intelligent Approaches

Systems of computational intelligence (artificial neural networks, fuzzy reasoning systems, evolutionary algorithms) in the tasks of big data processing (high-dimensional

data) where data are stored in VLDB or fed in an unlimited data stream. Natural language processing (using machine learning) to get the semantic objects from natural language; the deep learning methods for natural language understanding.

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 data mining and machine learning have become an important element of modern computer science.

September 2020

Yuriy Rashkevych
Yevgeniy Bodyanskiy
Igor Aizenberg

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DSMP 2020 conference was organized by:

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- IEEE Ukraine Section IM/CIS Societies Joint Chapter, Ukraine
- Kharkiv National University of Radio Electronics, Ukraine
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