Contents

Part I From Machine Learning to Data Mining

Analyzing Accident Prone Regions by Clustering ................... 3
Shuvashish Paul, Ashik Mostafa Alvi, Mahmudul Alam Nirjhor,
Shohanur Rahman, Adeeba Kashfee Orcho and Rashedur M. Rahman

Analyzing Life Insurance Data with Different Classification
Techniques for Customers’ Behavior Analysis .......................... 15
Md. Saidur Rahman, Kazi Zawad Arefin, Saqif Masud, Shahida Sultana
and Rashedur M. Rahman

Classification of Product Rating Using Data Mining Techniques ...... 27
Pinku Deb Nath, Sowvik Kanti Das, Fabiha Nazmi Islam, Kifayat Tahmid,
Raufir Ahmed Shanto and Rashedur M. Rahman

MASS: A Semi-supervised Multi-label Classification Algorithm
with Specific Features .................................................. 37
Thi-Ngan Pham, Van-Quang Nguyen, Duc-Trong Dinh,
Tri-Thanh Nguyen and Quang-Thuy Ha

Parallel Self-organizing Map Using Shared Virtual
Memory Buffers ........................................................... 49
Noor Elaiza Bt Abd Khalid, Muhammad Firdaus B. Mustapha,
Azlan B. Ismail and Mazani B. Manaf

Parametric Optimization of the Selected Classifiers in Binary
Classification ................................................................. 59
Daniel Kostrzewa and Robert Brzeski

Prediction of Academic Performance During Adolescence
Based on Socioeconomic, Psychological and Academic Factors ....... 71
A.T.M. Shakil Ahamed, Navid Tanzeem Mahmood
and Rashedur M. Rahman

ix
A Super-Vector Deep Learning Coprocessor
with High Performance-Power Ratio ................................. 81
Jingfei Jiang, Zhiqiang Liu, Jinwei Xu and Rongdong Hu

Part II  Big Data and Collaborative Decision Support Systems

Bi-temporal Database Model for Legal Merger Transactions
and Late-Arriving Information Problem: The Case of Polish Merger
Market  .............................................................................. 95
Aleksander Buczek and Jacek Mercik

Breathing Movement Analysis for Adjustment of Radiotherapy
Planning ............................................................................. 105
M. Penhaker, M. Novakova, J. Knybel, J. Kubicek, J. Grepl, V. Kasik
and T. Zapletal

Measuring Improvement in Access to Complete Data in Healthcare
Collaborative Database Systems ........................................ 117
Nurul A. Emran, Fathin N.M. Leza and Noraswaliza Abdullah

Rough Set Theory for Supporting Decision Making on Relevance
in Browsing Multilingual Digital Resources ........................ 129
Jolanta Mizera-Pietraszko and Jolanta Tancula

The Social Influence on the Behavioral Intention to Use Mobile
Electronic Medical Records ............................................ 141
Yi-Horng Lai

Stock Prices Growth Pattern by the Emergency Demand
After the Great East-Japan Earthquake ............................... 151
Kenji Yamaguchi, Yuriko Yano and Yukari Shirota

Structure-Based Virtual Screening for Novel Modulators of Human
Orexin 2 Receptor with Cloud Systems and Supercomputers 161
Rafael Dolezal, Eugenie Nepovimova, Michaela Melikova
and Kamil Kuca

Supply Chains of Cross-Border e-Commerce ..................... 173
Arkadiusz Kawa

Towards a Personalized Virtual Customer Experience ........ 185
Bartłomiej Pierański and Sergiusz Strykowski

Towards Big Management ................................................ 197
Marcin Hernes and Andrzej Bytniewski
Part III Computer Vision Analysis, Detection, Tracking and Recognition

Combination of Collision Detection and Visibility Algorithms in Simulation of the Effective Placement of Anti-air Elements ........ 213
Dalibor Cimr, Richard Cimler and Hana Tomášková

A Combination of Deep Learning and Hand-Designed Feature for Plant Identification Based on Leaf and Flower Images .......... 223
Thi Thanh-Nhan Nguyen, Thi-Lan Le, Hai Vu, Huy-Hoang Nguyen and Van-Sam Hoang

An Efficient Defect Classification Algorithm for Ceramic Tiles ....... 235
Khaled Ragab and Nahed Alsharay

Parking Assistant—Prediction of an Empty Parking Space in Time .... 249
Jan Tobola, Jan Dvorak and Ondrej Krejcar

Recent Advances in the Field of Foreground Detection: An Overview ................................................ 261
Ajmal Shahbaz, Laksono Kurniaggoro, Wahyono and Kang-Hyun Jo

Tracking of Bone Reparation Process with Using of Periosteal Callus Extraction Based on Fuzzy C-means Algorithm ............... 271
Jan Kubicek, Marek Penhaker, Iveta Bryjova, Martin Augustynek, Tomas Zapletal and Vladimir Kasik

Part IV Data-Intensive Text Processing

Automatic Post-editing of Kazakh Sentences Machine Translated from English ......................................................... 283
Assem Abeustanova and Ualsher Tukeyev

Complex Technology of Machine Translation Resources Extension for the Kazakh Language ............................. 297
Diana Rakhimova and Zhandos Zhumanov

Enhancing Latent Semantic Analysis by Embedding Tagging Algorithm in Retrieving Malay Text Documents ................. 309
Nurazzah Abd Rahman, Afiqah Bazlla Md Soom and Normaly Kamal Ismail

Exploiting Distance Graph and Hidden Topic Models for Multi-label Text Classification ................................. 321
Thi-Ngan Pham, Van-Hien Tran, Tri-Thanh Nguyen and Quang-Thuy Ha
Financial Reports and Financial News—An Information Content Gap Analysis .................................................. 333
Jia-Lang Seng, Kuan-Ying Huang and Hsiao-Fang Yang

The Great National Photocorpus of 20th-Century Vietnamese. Origins, Assumptions and Goals .................................. 343
Piotr Wierzechno

The Impact of User Sentiment Aroused by The-Day-of-the-Week on the Recommendation Effectiveness in Microblog ................ 355
Shih Yun Weng, Ping Yu Hsu, Ming Shien Cheng and Phan-Anh-Huy Nguyen

Multi-sentence Compression Using Word Graph and Integer Linear Programming .................................................. 367
Dung Tran Tuan, Nam Van Chi and Minh-Quoc Nghiem

A Performance Comparison of Feature Extraction Methods for Sentiment Analysis ............................................. 379
Lai Po Hung and Rayner Alfred

A Study of Plagiarism Checker System Based on Chinese Word Segmentation and SQL Intersection Operation Technique .......... 391
Ming-Hsiung Ying, Jui-Wen Fan and Hsiu-Min Yu

Text Summarization Based on Classification Using ANFIS ............. 405
Yogan Jaya Kumar, Fong Jia Kang, Ong Sing Goh and Atif Khan

Part V Innovations in Web and Internet Technologies

Analysis of Indoor Positioning Based on BLE .............................. 421
Wenjun Zhu, Shinheon Kim, Jaemin Hong and Chonggun Kim

A Fusion Technique of Schema and Syntax Rules for Validating Open Data ....................................................... 431
Shin’ya Yamaguchi and Kimio Kuramitsu

Job Description Language for a Browser-Based Computing Platform—A Preliminary Report ............................................... 443
Arkadiusz Danilecki, Tomasz Fabisiak and Maciej Kaszubowski

Measuring the Effectiveness of Knowledge Driven Web Applications ................................................................. 455
Supriya Chakraborty, Novarun Deb and Nabendu Chaki

Responsive Data Table Solution with New Scrolling Control Gesture for Better User Experience ...................... 467
Lukáš Čegan
Part VI New Methods and Applications in Software Engineering

Adaptation of an ANN-Based Air Quality Forecasting Model to a New Application Area ........................................... 479
Cezary Orlowski, Arkadiusz Sarzyński, Kostas Karatzas, Nikos Katsifarakis and Joanicjusz Nazarko

Checking Compliance of Program with SecureUML Model .............. 489
Thanh-Nhan Luong, Van-Khanh To and Ninh-Thuan Truong

Generation of Test Data Using Genetic Algorithm and Constraint Solver .......................................................... 499
Ngoc-Thi Dinh, Hieu-Dinh Vo, Thi-Dao Vu and Viet-Ha Nguyen

V.N. Vithana, D. Asirvatham and M.G.M. Johar

A Method for Automated Test Cases Generation from UML Models with String Constraints ......................... 525
Thi Dao Vu, Pham Ngoc Hung and Viet Ha Nguyen

Mobile Application for Calculation of Optimal Route Between Searched Points of Interest ........................................ 537
Veronika Nemeckova, Jan Dvorak and Ondrej Krejcar

On Implementation of the Assumption Generation Method for Component-Based Software Verification .............. 549
Chi-Luan Le, Hoang-Viet Tran and Pham Ngoc Hung

Author Index ........................................................................... 559
Advanced Topics in Intelligent Information and Database Systems
Król, D.; Nguyen, N.T.; Shirai, K. (Eds.)
2017, XIII, 561 p. 171 illus., 101 illus. in color., Hardcover
ISBN: 978-3-319-56659-7