Contents

Part I  Data Analysis and Applications

Association-Rule-Based Random Walk Method for Personalized Tag Recommendation ........................................... 3
Jing Wang and Nianlong Luo

Motion Sequence Recognition with Multi-sensors Using Deep Convolutional Neural Network ........................................... 13
Runfeng Zhang and Chunping Li

Vibration Attenuation of the Electromechanical System by a Double Impact Element ......................................................... 25
Marek Lampart and Jaroslav Zapoměl

Ear Feature Extraction Using a DWT-SIFT Hybrid ............................ 37
Lamis Ghoualmi, Amer Draa and Salim Chikhi

Automatic Fuzzy Classification System for Metabolic Types Detection .......................................................... 49
Michal Prauzek, Jakub Hlavica and Marketa Michalíková

A Hybrid Approach for Predicting River Runoff ............................... 61
Hieu N. Duong, Hien T. Nguyen and Vaclav Snasel

Critical Evaluation of Seven Lactation Curve Estimation Models ........... 73
Jaroslav Marek, Radko Rajmon and Tomas Haloun

Model Predictive Control of Trajectory Tracking of Differentially Steered Mobile Robot ............................................. 85
K. Rahul Sharma, Daniel Honc and František Dušek
Generalized Linear Models Applied for Skin Identification in Image Processing
Sebastián Basterrech, Andrea Mesa and Ngoc-Tu Dinh

A Survey on Big Data, Mining: (Tools, Techniques, Applications and Notable Uses)
Nour E. Oweis, Suhail S. Owais, Waseem George, Mona G. Suliman and Václav Snášel

Modeling of Acoustic Short Circuits
Stanislav Misak, Viktor Pokorny and Petr Kacor

A Novel Method for Detection of Covered Conductor Faults by PD-Pattern Evaluation
Tomas Vantuch, Tomas Burianek and Stanislav Misak

Application Tool for Prediction and Implementation of QoS in IP Based Network
Jaroslav Frnda, Miroslav Voznak, Martin Hlozak, Jiri Slachta and Jerry Chun-Wei Lin

Procedure for Mapping Objective Video Quality Metrics to the Subjective MOS Scale for Full HD Resolution of H.265 Compression Standard
Miroslav Uhrina, Miroslav Voznak, Martin Vaculik and Michal Malicek

SOM on Interval Variables for Mobile Emergency Call Positioning
Petr Klement and Václav Snášel

Normalization of Vietnamese Tweets on Twitter
Vu H. Nguyen, Hien T. Nguyen and Vaclav Snasel

The Influence of the Rhythm with the Pitch on Melodic Segmentation
Michele Della Ventura

PERSONALIZED Source Selection Process: A Social Profile Adaptation Technique
Zakaria Saoud and Samir Kechid

The School Absenteeism Contributing Factors: Oman as a Case Study
Bader Said Rashid AL-Farsi, Ali Ahmed and Saadat AlHashmi
Shipping Schedule-Oriented Production Planning Using Genetic Algorithm
Jana Heckenbergerova and Petr Dolezel

Hameed Al-Qaheri and Soumya Banerjee

Implicit Authentication System for Smartphones Users Based on Touch Data
Reham Amin, Tarek Gaber and Ghada ElTaweel

Part II Secure Multimedia Applications

Development of Iris Security System Using Adaptive Quality-Based Template Fusion
M.M. Eid, M.A. Mohamed and M.A. Abou-El-Soud

3D Model Reconstruction Method Using Data Fusion
E.A. Othman, Abdelhameed Ibrahim and M.A. Mohamed

Safe Vehicle Driving Using Android Based Smartphones
Bassant M. El-Den, M.A. Mohamed and A.I. AbdelFattah

QoS Optimization for Multimedia Streaming Using Hybrid RRM and DASs Over LTE Networks
Hegazi Ibrahim and M.A. Mohamed

Enhanced Algorithm for Rate Adaption for IEEE 802.11 Networks
Salma S. Mohamed, Waleed M. Bahgat and M.A. Mohamed

IPv6 Adoption in the Kingdom of Saudi Arabia
Ahmed Abed, Ali Ahmed and Saadat AlHashmi

Software Engineering for Security as a Non-functional Requirement
Noha Ragab, Ali Ahmed and Saadat AlHashmi
### Part III  Security and Privacy

**Localization for Jamming Attack in Wireless Sensor Networks**  
Jing Zhang, Li Xu, Qun Shen and Xiaorong Ji  
Page 361

**Applications of Cloud Model in Digital Watermarking**  
Linlin Tang, Yu Tian and Jengshyang Pan  
Page 371

**A Dual Watermarking Scheme by Using Compressive Sensing and Subsampling**  
Jeng-Shyang Pan, Jia-Jiao Duan and Wei Li  
Page 381

### Part IV  Signal Processing and Applications

**A Unified Framework of Single Image Haze Removal under Different Weather Conditions**  
Yi-Fan Li, Qiang Su, Jeng-Shyang Pan, Jun-Bao Li, Wei Cui and Huan-Yu Liu  
Page 393

**DOA Estimation Method for Wideband Signals Based on Multiple Small Aperture Subarrays**  
Jiaqi Zhen and Zhifang Wang  
Page 405

**Research on Heuristic Based Load Balancing Algorithms in Cloud Computing**  
Jengshyang Pan, Pingfei Ren and Linlin Tang  
Page 417

**Comparison and Test for Several Typical Cloud Computing Platforms**  
Xiang Xu, Fumin Zou, Quan Zhu and Xianghai Ge  
Page 427

### Part V  Applications of the Big Data and the Connected Vehicles

**System Architecture and Core Technologies for Transportation Internet of Things**  
Quan Zhu, Fumin Zou and Yanling Deng  
Page 439

**A Power Consumption Balancing Algorithm Based on Evolved Bat Algorithm for Wireless Sensor Network**  
Jeng-Shyang Pan, Lingping Kong, Pei-Wei Tsai, Snasel Vaclav and Jiun-Huei Ho  
Page 449
Research and Simulation on the MB Parallel Interleaver
Cognitive Ultra Wideband System ........................................ 457
Bing Zhao, Zhifang Wang and Jiaqi Zhen

Part VI  Machine Learning Algorithms for Big Data

A Novel Uninorm-Based Evolving Fuzzy Neural Networks ......... 469
Rong Hu, Ye Sha and Hai Yan Yang

Quaternion Fisher Discriminant Analysis for Bimodal
Multi-feature Fusion ......................................................... 479
Meng Chen, Xiao Meng and Zhifang Wang

Algorithm SESP of Wireless Sensor Network Node ............... 489
Xuhong Huang

Part VII  Intelligent Data Analysis and Processing

Automated Enzyme Function Classification Based on Pairwise
Sequence Alignment Technique ........................................... 499
Mahir M. Sharif, Alaa Tharwat, Aboul Ella Hassanien
and Hesham A. Hefeny

Predicting Personality Traits and Social Context Based on Mining
the Smartphones SMS Data .............................................. 511
Fatma Yakoub, Moustafa Zein, Khaled Yasser, Ammar Adl
and Aboul Ella Hassanien

Machine Learning-Based Measurement System for Spinal Cord
Injuries Rehabilitation Length of Stay .............................. 523
Rehab Mahmoud, Nashwa El-Bendary, Hoda M.O. Mokhtar,
Aboul Ella Hassanien and Hala A. Shaheen

Region-based Image Fusion Approach of Panchromatic
and Multi-spectral Images .............................................. 535
Reham Gharbia, Ali Hassan El Baz, Aboul Ella Hassanien
and Vaclav Snasel
Biomarker-Based Water Pollution Assessment System
Using Case-Based Reasoning ........................................... 547
Asmaa Hashem Sweidan, Nashwa El-Bendary,
Osman Mohammed Hegazy and Aboul Ella Hassanien

Erratum to: Personalized Source Selection Process: a Social Profile
Based Adaptation Technique ........................................... E1
Zakaria Saoud and Samir Kechid

Author Index ................................................................. 559
Intelligent Data Analysis and Applications
Abraham, A.; Jiang, X.H.; Snasel, V.; Pan, J.-S. (Eds.)
2015, XX, 560 p. 196 illus., Softcover
ISBN: 978-3-319-21205-0