Contents – Part II

Applications of Data Science

Exploring Spatial and Social Factors of Crime:  
A Case Study of Taipei City ......................................................... 3  
    Nathan Kuo, Chun-Ming Chang, and Kuan-Ta Chen

A Fuzzy Logic Based Network Intrusion Detection System for Predicting  
the TCP SYN Flooding Attack ..................................................... 14  
    Nenekazi Nokuthala Penelope Mkuzangwe  
    and Fulufhelo Vincent Nelwamondo

Analytical Ideas to Improve Daily Demand Forecasts: A Case Study ............. 23  
    Sougata Deb

Increasing the Detection of Minority Class Instances in Financial  
Statement Fraud .............................................................................. 33  
    Stephen Obakeng Moepya, Fulufhelo V. Nelwamondo,  
    and Bhekisipho Twala

Information Technology Services Evaluation Based ITIL V3 2011  
and COBIT 5 in Center for Data and Information ................................ 44  
    Firman Hartawan and Jarot S. Suroso

Artificial Intelligence Applications for E-services

To Solve the TDVRPTW via Hadoop MapReduce Parallel Computing .......... 55  
    Bo-Yi Li and Chen-Shu Wang

MapReduce-Based Frequent Pattern Mining Framework with Multiple  
Item Support ................................................................................... 65  
    Chen-Shu Wang, Shiang-Lin Lin, and Jui-Yen Chang

Balanced k-Means ............................................................................. 75  
    Chen-Ling Tai and Chen-Shu Wang

An Optimal Farmland Allocation E-Service Deployment .............................. 83  
    Wei-Feng Tung and Chun-Liang Pan
Automated Reasoning and Proving Techniques with Applications in Intelligent Systems

Anticipatory Runway Incursion Prevention Based on Inaccurate Position Surveillance Information .......................................................... 93  
Kai Shi, Hai Yu, Zhiliang Zhu, and Jingde Cheng

The Relation Between Syntax Restriction of Temporal Logic and Properties of Reactive System Specification ............................. 105  
Noriaki Yoshiura

Measuring Interestingness of Theorems in Automated Theorem Finding by Forward Reasoning: A Case Study in Peano’s Arithmetic .................. 115  
Hongbiao Gao and Jingde Cheng

A Predicate Suggestion Algorithm for Automated Theorem Finding with Forward Reasoning ................................................... 125  
Yuichi Goto, Hongbiao Gao, and Jingde Cheng

Collective Intelligence for Service Innovation, Technology Opportunity, E-Learning and Fuzzy Intelligent Systems

Modeling a Multi-criteria Decision Support System for Capital Budgeting Project Selection ............................................................. 137  
Kuo-Sui Lin and Jui-Ching Pan

Innovative Diffusion Chance Discovery ........................................... 148  
Chao-Fu Hong and Mu-Hua Lin

Chance Discovery in a Group-Trading Model — Creating an Innovative Tour Package with Freshwater Fish Farms at Yilan ..................... 157  
Pen-Choug Sun, Chao-Fu Hong, Tsu-Feng Kuo, and Rahat Iqbal

Using Sentiment Analysis to Explore the Association Between News and Housing Prices ......................................................... 170  
Hsiao-Fang Yang and Jia-Lang Seng

Importance-Performance Analysis Based Evaluation Method for Security Incident Management Capability ........................................... 180  
Chih-Chung Chiu and Kuo-Sui Lin

Intelligent Computer Vision Systems and Applications

Moment Shape Descriptors Applied for Action Recognition in Video Sequences ............................................................ 197  
Katarzyna Gościewska and Dariusz Frejlichowski
Automatic Detection of Singular Points in Fingerprint Images
Using Convolution Neural Networks .................................................... 207
Hong Hai Le, Ngoc Hoa Nguyen, and Tri-Thanh Nguyen

Vehicle Detection in Hsuehshan Tunnel Using Background Subtraction
and Deep Belief Network ................................................................. 217
Bo-Jhen Huang, Jun-Wei Hsieh, and Chun-Ming Tsai

Segment Counting Versus Prime Counting in the Ulam Square ............... 227
Leszek J. Chmielewski, Arkadiusz Orlowski, and Grzegorz Gawdzik

Improving Traffic Sign Recognition Using Low Dimensional Features .... 237
Laksono Kurniaggoro, Wahyono, and Kang-Hyun Jo

Image Processing Approach to Diagnose Eye Diseases ......................... 245
M. Prashasthi, K.S. Shravya, Ankit Deepak, Manjunath Mulimani,
and Koolagudi G. Shashidhar

Weakly-Labelled Semantic Segmentation of Fish Objects in Underwater
Videos Using a Deep Residual Network ............................................. 255

A New Feature Extraction in Dorsal Hand Recognition
by Chromatic Imaging ...................................................................... 266
Orcan Alpar and Ondrej Krejcar

Testing the Limits of Detection of the ‘Orange Skin’ Defect in Furniture
Elements with the HOG Features ....................................................... 276
Leszek J. Chmielewski, Arkadiusz Orlowski, Grzegorz Wieczorek,
Katarzyna Śmietańska, and Jarosław Górski

Intelligent Data Analysis, Applications and Technologies for Internet
of Things

Reaching Safety Vehicular Ad Hoc Network of IoT ............................ 289
Shu-Ching Wang, Shih-Chi Tseng, Shun-Sheng Wang, and Kuo-Qin Yan

Short-Term Load Forecasting in Smart Meters with Sliding Window-Based
ARIMA Algorithms .......................................................................... 299
Dima Alberg and Mark Last

Bus Drivers Fatigue Measurement Based on Monopolar EEG ............... 308
Chin-Ling Chen, Chong-Yan Liao, Rung-Ching Chen, Yung-Wen Tang,
and Tzay-Farn Shih

An Improved Sleep Posture Recognition Based on Force Sensing Resistors 318
Yung-Fa Huang, Yi-Hsiang Hsu, Chia-Chi Chang, Shing-Hong Liu,
Ching-Chuan Wei, Tsung-Yu Yao, and Chuan-Bi Lin
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remaining Useful Life Estimation-A Case Study on Soil Moisture Sensors</td>
<td>328</td>
</tr>
<tr>
<td><em>Fang-Chien Chai, Chun-Chih Lo, Mong-Fong Horng, and Yau-Hwang Kuo</em></td>
<td></td>
</tr>
<tr>
<td><strong>Intelligent Algorithms and Brain Functions</strong></td>
<td></td>
</tr>
<tr>
<td>Neurofeedback System for Training Attentiveness</td>
<td>341</td>
</tr>
<tr>
<td><em>Khuan Y. Lee, Emir Eiqram Hidzir, and Muhd Redzuan Haron</em></td>
<td></td>
</tr>
<tr>
<td>Building Classifiers for Parkinson’s Disease Using New Eye Tribe</td>
<td>351</td>
</tr>
<tr>
<td>Tracking Method</td>
<td></td>
</tr>
<tr>
<td><em>Artur Szymański, Stanislaw Szlufik, Dariusz M. Koziorowski, and Andrzej W. Przybyszewski</em></td>
<td></td>
</tr>
<tr>
<td>Rules Found by Multimodal Learning in One Group of Patients Help</td>
<td>359</td>
</tr>
<tr>
<td>to Determine Optimal Treatment to Other Group of Parkinson’s Patients</td>
<td></td>
</tr>
<tr>
<td><em>Andrzej W. Przybyszewski, Stanislaw Szlufik, Piotr Habela, and Dariusz M. Koziorowski</em></td>
<td></td>
</tr>
<tr>
<td><strong>Intelligent Systems and Algorithms in Information Sciences</strong></td>
<td></td>
</tr>
<tr>
<td>Reasoning in Formal Systems of Extended RDF Networks</td>
<td>371</td>
</tr>
<tr>
<td><em>Alena Lukasová, Martin Žáček, and Marek Vajgl</em></td>
<td></td>
</tr>
<tr>
<td>Big Data Filtering Through Adaptive Resonance Theory</td>
<td>382</td>
</tr>
<tr>
<td><em>Adam Barton, Eva Volna, and Martin Kotyrba</em></td>
<td></td>
</tr>
<tr>
<td>The Effectiveness of the Simplicity in Evolutionary Computation</td>
<td>392</td>
</tr>
<tr>
<td><em>Michał Witold Przewozniczêk, Krzysztof Walkowiak, and Michal Aibin</em></td>
<td></td>
</tr>
<tr>
<td>Genetic Algorithm for Self-Test Path and Circular Self-Test Path Design</td>
<td>403</td>
</tr>
<tr>
<td><em>Miłosław Chodacki</em></td>
<td></td>
</tr>
<tr>
<td><strong>IT in Biomedicine</strong></td>
<td></td>
</tr>
<tr>
<td>The Use of Tuned Shape Window for the Improvement of Scars Imaging</td>
<td>415</td>
</tr>
<tr>
<td>in Static Renal Scintigraphy in Children</td>
<td></td>
</tr>
<tr>
<td><em>Janusz Paweł Kowalski, Bozena Birkenfeld, Piotr Zorga, Jakub Peksinski, and Grzegorz Mikolajczak</em></td>
<td></td>
</tr>
<tr>
<td>PCA-SCG-ANN for Detection of Non-structural Protein 1 from SERS</td>
<td>424</td>
</tr>
<tr>
<td>Salivary Spectra</td>
<td></td>
</tr>
<tr>
<td><em>N.H. Othman, Khuan Y. Lee, A.R.M. Radzol, and W. Mansor</em></td>
<td></td>
</tr>
<tr>
<td>Prediction of Arterial Blood Gases Values in Premature Infants</td>
<td>434</td>
</tr>
<tr>
<td>with Respiratory Disorders</td>
<td></td>
</tr>
<tr>
<td><em>Wiesław Wajs, Hubert Wojtowicz, Piotr Wais, and Marcin Ochab</em></td>
<td></td>
</tr>
</tbody>
</table>
Extraction of Optical Disc Geometrical Parameters with Using of Active Snake Model with Gradient Directional Information ......................................... 445
Jan Kubicek, Juraj Timkovic, Marek Penhaker, Martin Augustynek, Iveta Bryjova, and Vladimir Kasik

Segmentation of Vascular Calcifications and Statistical Analysis of Calcium Score ......................................................................................... 455
Jan Kubicek, Iveta Bryjova, Jan Valosek, Marek Penhaker, Martin Augustynek, Martin Cerny, and Vladimir Kasik

Rough Hypercuboid and Modified Kulczynski Coefficient for Disease Gene Identification .................................................................................. 465
Ekta Shah and Pradipta Maji

Detection of Raynaud’s Phenomenon by Thermographic Testing for Finger Thermoregulation ........................................................................ 475
Orcan Alpar and Ondrej Krejcar

Intelligent Technologies in the Smart Cities in the 21st Century

Enhancing Energy Efficiency of Adaptive Lighting Control ............... 487
Adam Sędziwy, Leszek Kotulski, and Artur Basiura

Comparative Analysis of Selected Algorithms in the Process of Optimization of Traffic Lights ................................................................. 497
K. Małek, P. Pietruszka, and S. Iwan

Knowledge Representation Framework for Agent–Based Economic Systems in Smart City Context ................................................................. 507
Martina Husáková and Petr Tučnik

The Principles of Model Building Concepts Which Are Applied to the Design Patterns for Smart Cities ......................................................... 517
Katarzyna Ossowska, Liliana Szwec, and Cezary Orlowski

Assessment and Optimization of Air Monitoring Network for Smart Cities with Multicriteria Decision Analysis ....................................... 531
Aleksander Orlowski, Mariusz Marę, Jacek Namieśnik, and Marek Tobiszewski

Urban Air Quality Forecasting: A Regression and a Classification Approach . . 539
Kostas Karatzas, Nikos Katsifarakis, Cezary Orlowski, and Arkadiusz Sarzyński
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of Image, Video and Motion Data in Life Sciences</td>
<td></td>
</tr>
<tr>
<td>Ethnicity Distinctiveness Through Iris Texture Features Using Gabor Filters</td>
<td>551</td>
</tr>
<tr>
<td>Gugulethu Mabuza-Hocquet, Fulufhelo Nelwamondo, and Tshilidzi Marwala</td>
<td></td>
</tr>
<tr>
<td>Diminishing Variant Illumination Factor in Object Recognition.</td>
<td>561</td>
</tr>
<tr>
<td>Ardidan Yunanto and Iman Herwidian Kartowisastro</td>
<td></td>
</tr>
<tr>
<td>Fast Moving UAV Collision Avoidance Using Optical Flow and Stereovision</td>
<td>572</td>
</tr>
<tr>
<td>Damian Pęszor, Marzena Wojciechowska, Konrad Wojciechowski, and Marcin Szender</td>
<td></td>
</tr>
<tr>
<td>Towards the Notion of Average Trajectory of the Repeating Motion of Human Limbs</td>
<td>582</td>
</tr>
<tr>
<td>Sven Nõmm, Aaro Toomela, and Ilia Gaichenja</td>
<td></td>
</tr>
<tr>
<td>Interfered Seals and Handwritten Characters Removal for Prescription Images</td>
<td>592</td>
</tr>
<tr>
<td>Wen-Hong Zhang, Teng-Hui Tseng, and Chun-Ming Tsai</td>
<td></td>
</tr>
<tr>
<td>Neuromuscular Fatigue Analysis of Soldiers Using DWT Based EMG and EEG Data Fusion During Load Carriage</td>
<td>602</td>
</tr>
<tr>
<td>D.N. Filzah P. Damit, S.M.N. Arosha Senanayake, Owais A. Malik, and Nor Jaidi Tuah</td>
<td></td>
</tr>
<tr>
<td>Manifold Methods for Action Recognition</td>
<td>613</td>
</tr>
<tr>
<td>Agnieszka Michalczuk, Kamil Wereszczyński, Jakub Segen, Henryk Josiński, Konrad Wojciechowski, Artur Bąk, Sławomir Wojciechowski, Aldona Drabik, and Marek Kulbacki</td>
<td></td>
</tr>
<tr>
<td>Optical Flow Based Face Anonymization in Video Sequences</td>
<td>623</td>
</tr>
<tr>
<td>Kamil Wereszczyński, Agnieszka Michalczuk, Jakub Segen, Magdalena Pawlyta, Artur Bąk, Jerzy Paweł Nowacki, and Marek Kulbacki</td>
<td></td>
</tr>
<tr>
<td>An Analysis of the Centre of Mass Behavior During Treadmill Walking</td>
<td>632</td>
</tr>
<tr>
<td>Henryk Josiński, Adam Świtoński, Agnieszka Michalczuk, Konrad Wojciechowski, and Jerzy Paweł Nowacki</td>
<td></td>
</tr>
<tr>
<td>A Bayesian Framework for Chemical Shift Assignment</td>
<td>641</td>
</tr>
<tr>
<td>Adam Gonczarek, Piotr Klukowski, Maciej Drwal, and Paweł Świątek</td>
<td></td>
</tr>
</tbody>
</table>
Modern Applications of Machine Learning for Actionable Knowledge Extraction

Traditional vs. Machine Learning Techniques: Customer Propensity
Mamta A. Rajnayak, Snigdha Moitra, and Charu Nahata

Analytics on the Impact of Leadership Styles and Leadership Outcome
Waseem Ahmad and Muhammad Akhtaruzamman

An Investigation into the Relationship of Strategic Planning Practices and Organizational Performance Using Advanced Data Mining Techniques
Philip Bright, Waseem Ahmad, and Uswa Zahra

Mathematics of Decision Sciences and Information Science

A Ranking Procedure with the Shapley Value
Aleksei Kondratev and Vladimir Mazalov

Optimal Design of Robust Combinatorial Mechanisms for Substitutable Goods
Maciej Drwal

Communication and KP-Model
Takashi Matsuhisa

Scalable Data Analysis in Bioinformatics and Biomedical Informatics

Orchestrating Task Execution in Cloud4PSi for Scalable Processing of Macromolecular Data of 3D Protein Structures
Dariusz Mrozek, Artur Klapciński, and Bożena Małysia-Mrozek

Probabilistic Neural Network Inferences on Oligonucleotide Classification Based on Oligo: Target Interaction
Abdul Rahiman Anusha and S. S. Vinodchandra

Scalability of a Genomic Data Analysis in the BioTest Platform
Krzysztof Psiuk-Maksymowicz, Dariusz Mrozek, Roman Jaksik, Damian Borys, Krzysztof Fijarewicz, and Andrzej Świerniak

Quantifying the Effect of Metapopulation Size on the Persistence of Infectious Diseases in a Metapopulation
Cam-Giang Tran-Thi, Marc Choisy, and Jean Daniel Zucker
Large-Scale Data Classification System Based on Galaxy Server and Protected from Information Leak. 
Krzysztof Fujarewicz, Sebastian Student, Tomasz Zielański, Michał Jakubczak, Justyna Pieter, Katarzyna Pajda, and Andrzej Świerniak

Technological Perspective of Agile Transformation in IT organizations

Agents of RUP Processes Model for IT Organizations Readiness to Agile Transformation Assessment 
Włodzimierz Wysocki, Cezary Orłowski, Artur Ziółkowski, and Grzegorz Bocewicz

Evaluation of Readiness of IT Organizations to Agile Transformation Based on Case-Based Reasoning 
Cezary Orłowski, Tomasz Deregowski, Miłosz Kurzawski, and Artur Ziółkowski

Building Dedicated Project Management Process Basing on Historical Experience 
Cezary Orłowski, Tomasz Deregowski, Miłosz Kurzawski, and Artur Ziółkowski

Describing Criteria for Selecting a Scrum Tool Using the Technology Acceptance Model. 
Gerard Wagenaar, Sietse Overbeek, and Remko Helms

Author Index
Contents – Part I

Knowledge Engineering and Semantic Web

The Knowledge Increase Estimation Framework for Ontology Integration on the Instance Level ........................................... 3
Adrianna Kozierkiewicz-Hetmańska, Marcin Pietranik, and Bogumiła Hnatkowska

Online Integration of Fragmented XML Documents. .................. 13
Handoko and Janusz R. Getta

Merging Possibilistic Belief Bases by Argumentation .................. 24
Thi Hong Khanh Nguyen, Trong Hieu Tran, Tran Van Nguyen, and Thi Thanh Luu Le

Towards Common Vocabulary for IoT Ecosystems—preliminary Considerations ............................................. 35
Maria Ganzha, Marcin Paprzycki, Wiesław Pawłowski, Paweł Szmeja, and Katarzyna Wasielewska

Graphical Interface for Ontology Mapping with Application to Access Control ............................................. 46
Michał Drozdowicz, Motasem Alwazir, Maria Ganzha, and Marcin Paprzycki

Influence of Group Characteristics on Agent Voting .................. 56
Marcin Maleszka

Collective Knowledge: An Enhanced Analysis of the Impact of Collective Cardinality ........................................ 65
Van Du Nguyen

A New Ontology-Based Approach for Construction of Domain Model ..... 75
Bogumiła Hnatkowska, Zbigniew Huzar, Lech Tuzinkiewicz, and Iwona Dubielewicz

Social Networks and Recommender Systems

A Power-Graph Analysis of Non-fast Information Transmission .......... 89
Jacek Mercik
Group Recommendation Based on the Analysis of Group Influence and Review Content .............................................. 100
Chin-Hui Lai and Pei-Ru Hong

On Rumor Source Detection and Its Experimental Verification on Twitter .......................................................... 110
Dariusz Król and Karolina Wiśniewska

Topic Preference-based Random Walk Approach for Link Prediction in Social Networks .................................. 120
Thiamthep Khamket, Arnon Rungsawang, and Bundit Manaskasemsak

Level of Education and Previous Experience in Acquiring ICT/Smart Technologies by the Elderly People. ............... 130
Ivana Simonova and Petra Poulova

The Effect of Presentation in Online Advertising on Perceived Intrusiveness and Annoyance in Different Emotional States .......................................................... 140
Kaveh Bakhtiyari, Jürgen Ziegler, and Hafizah Husain

Runtime Verification and Quality Assessment for Checking Agent Integrity in Social Commerce System ............. 150
Najwa Abu Bakar, Mohd Hafiz Selamat, and Ali Selamat

Evaluation of Tensor-Based Algorithms for Real-Time Bidding Optimization .................................................... 160
Andrzej Szwabe, Paweł Misiorek, and Michał Ciesielczyk

A Consensus-Based Method to Enhance a Recommendation System for Research Collaboration ....................... 170
Dinh Tuyen Hoang, Van Cuong Tran, Tuong Tri Nguyen, Ngoc Thanh Nguyen, and Dosam Hwang

International Business Matching Using Word Embedding .................................................................................. 181
Didier Gohourou, Daiki Kurita, Kazuhiro Kuwabara, and Hung-Hsuan Huang

Mixture Seeding for Sustainable Information Spreading in Complex Networks .............................................. 191
Jarosław Jankowski

Complex Networks in the Epidemic Modelling ................................................................................................. 202
Tomasz Biegus and Halina Kwasnicka

XXXVIII Contents – Part I
## Text Processing and Information Retrieval

Identification of Biomedical Articles with Highly Related Core Contents . . . . 217
   Rey-Long Liu

An Efficient Hybrid Model for Vietnamese Sentiment Analysis . . . . . . . . 227
   Thanh Hung Vo, Thien Tin Nguyen, Hoang Anh Pham, and Thanh Van Le

Simple and Accurate Method for Parallel Web Pages Detection . . . . . . . . 238
   Alibi Jangeldin and Zhenisbek Assylbekov

Combining Latent Dirichlet Allocation and K-Means for Documents
Clustering: Effect of Probabilistic Based Distance Measures . . . . . . . . . . 248
   Quang Vu Bui, Karim Sayadi, Soufian Ben Amor, and Marc Bui

A Hybrid Method for Named Entity Recognition on Tweet Streams . . . . . . 258
   Van Cuong Tran, Dinh Tuyen Hoang, Ngoc Thanh Nguyen, and Dosam Hwang

A Method for User Profile Learning in Document Retrieval System
Using Bayesian Network . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 269
   Bernadetta Maleszka

## Intelligent Database Systems

Answering Temporal Analytic Queries over Big Data Based
on Precomputing Architecture. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 281
   Nigel Franciscus, Xuguang Ren, and Bela Stantic

Functional Querying in Graph Databases . . . . . . . . . . . . . . . . . . . . . . . . . . . 291
   Jaroslav Pokorný

Online Transaction Processing (OLTP) Performance Improvement
Using File-Systems Layer Transparent Compression . . . . . . . . . . . . . . . . . . . 302
   Suharjito and Adrianus B. Kurnadi

A Multi-database Access System with Instance Matching . . . . . . . . . . . . . . 312
   Thanapol Phungtua-Eng and Suphamit Chittayasothorn

## Intelligent Information Systems

Enhancing Product Innovation Through Smart Innovation
Engineering System . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 325
   Mohammad Maqbool Waris, Cesar Sanin, and Edward Szcerbicki
Analyses of Aspects of Knowledge Diffusion Based on the Example of the Green Supply Chain

Anna Maryniak and Łukasz Strąk

Comparative Evaluation of Bluetooth and Wi-Fi Direct for Tablet-Oriented Educational Applications

Keiichi Endo, Ayame Onoyama, Dai Okano, Yoshinobu Higami, and Shinya Kobayashi

Comparing TPC-W and RUBiS via PCA

Markus Lumpe and Quoc Bao Vo

Analysis and Solution Model of Distributed Computing in Scientific Calculations

Josef Horalek and Vladimír Soběslav

Decision Support Control Systems

Failures in Discrete Event Systems and Dealing with Them by Means of Petri Nets

František Čapkovič

Defining Deviation Sub-spaces for the A*W Robust Planning Algorithm

Igor Wojnicki and Sebastian Ernst

Creative Expert System: Comparison of Proof Searching Strategies

Bartłomiej Snieżynski, Grzegorz Legien, Dorota Wilk-Kołodziejczyk, Stanisława Kluska-Nawarecka, Edward Nawarecki, and Krzysztof Jaśkowiec

Spatial Planning as a Hexomino Puzzle

Marcin Cwiek and Jakub Nalepa

Ramp Loss Support Vector Data Description

Vo Xuanthanh, Tran Bach, Hoai An Le Thi, and Tao Pham Dinh

The Temporal Supplier Evaluation Model Based on Multicriteria Decision Analysis Methods

Jarosław Wątrobicki, Wojciech Salabun, and Grzegorz Ladorucki

Machine Learning and Data Mining

A Novel Entropy-Based Approach to Feature Selection

Chia-Hao Tu and Chunshien Li

An Artificial Player for a Turn-Based Strategy Game

Filip Maly, Pavel Kriz, and Adam Mrazek
Recognizing the Pattern of Binary Hermitian Matrices by a Quantum Circuit .......................................................... 466
   Joanna Wiśniewska and Marek Sawerwain

Fuzzy Maximal Frequent Itemset Mining Over Quantitative Databases. .... 476
   Haifeng Li, Yue Wang, Ning Zhang, and Yuejin Zhang

A Method for Early Pruning a Branch of Candidates in the Process of Mining Sequential Patterns. ......................... 487
   Bac Le, Minh-Thai Tran, and Duy Tran

Analyzing Performance of High Frequency Currency Rates Prediction Model Using Linear Kernel SVR on Historical Data .... 498
   Chanakya Serjam and Akito Sakurai

Unsupervised Language Model Adaptation by Data Selection for Speech Recognition .............................................. 508
   Yerbolat Khassanov, Tze-Yuang Chong, Benjamin Bigot,
   and Eng Siong Chng

Metaheuristic Optimization on Conventional Freeman Chain Code Extraction Algorithm for Handwritten Character Recognition .......................... 518
   Muhammad A. Mohamad, Habibollah Haron, and Haswadi Hasan

A Novel Learning Vector Quantization Inference Classifier ...................... 528
   Chakkraphop Maisen, Sansanee Auephanwiriyakul,
   and Nipon Theera-Umpon

Mining Periodic High Utility Sequential Patterns. ............................ 545
   Tai Dinh, Van-Nam Huynh, and Bac Le

Mining Class Association Rules with Synthesis Constraints .................. 556
   Loan T.T. Nguyen, Bay Vo, Hung Son Nguyen, and Sinh Hoa Nguyen

Towards Auto-structuring Harmony Transcription ............................... 566
   Marek Kopel

Computer Vision Techniques

Boosting Detection Results of HOG-Based Algorithms Through Non-linear Metrics and ROI Fusion ............................... 577
   Darius Malysiak, Anna-Katharina Römhild, Christoph Nieß,
   and Uwe Handmann

Automatic Interactive Video Authoring Method via Object Recognition ... 589
   Ui-Nyoung Yoon, Myung-Duk Hong, and Geun-Sik Jo
Target Object Tracking-Based 3D Object Reconstruction in a Multiple Camera Environment in Real Time .............................................. 599
Jinjoo Song, Heeryon Cho, and Sang Min Yoon

Boosting Discriminative Models for Activity Detection Using Local Feature Descriptors ..................................................... 609
Van-Huy Pham, My-Ha Le, and Van-Dung Hoang

Highlights Extraction in Sports Videos Based on Automatic Posture and Gesture Recognition ............................................. 619
Kazimierz Choroś

Advanced Data Mining Techniques and Applications

A High-Performance Algorithm for Mining Repeating Patterns ............... 631
Ja-Hwung Su, Tzung-Pei Hong, Chu-Yu Chin, Zhi-Feng Liao, and Shyr-Yuan Cheng

Recognition of Empathy Seeking Questions in One of the Largest Woman CQA in Japan .......................................................... 641
Tatsuro Shimada and Akito Sakurai

A Content-Based Image Retrieval Method Based on the Google Cloud Vision API and WordNet .............................................. 651
Shih-Hsin Chen and Yi-Hui Chen

A Personalized Recommendation Method Considering Local and Global Influences ...................................................... 663
Hendry, Rung-Ching Chen, and Lijuan Liu

Virtual Balancing of Decision Classes ................................................ 673
Marzena Kryszkiewicz

Evaluation of Speech Perturbation Features for Measuring Authenticity in Stress Expressions .............................................. 685
Branimir Dropuljić, Leo Mršić, Robert Kopal, Sandro Skansi, and Andrijana Brkić

Intelligent and Context Systems

Context Injection as a Tool for Measuring Context Usage in Machine Learning ...................................................... 697
Maciej Huk

An Approach for Multi-Relational Data Context in Recommender Systems ................................................................. 709
Nguyen Thai-Nghe, Mai Nhut-Tu, and Huu-Hoa Nguyen
A Hybrid Feature Selection Method Based on Symmetrical Uncertainty and Support Vector Machine for High-Dimensional Data Classification

Yongjun Piao and Keun Ho Ryu

Selecting Important Features Related to Efficacy of Mobile Advertisements

Goutam Chakraborty, L.C. Cheng, L.S. Chen, and Cedric Bornand

A Comparative Study of Evolutionary Algorithms with a New Penalty Based Fitness Function for Feature Subset Selection

Atsushi Kawamura and Basabi Chakraborty

A Context-Aware Fitness Function Based on Feature Selection for Evolutionary Learning of Characteristic Graph Patterns

Fumiya Tokuhara, Tetsuhiro Miyahara, Tetsuji Kuboyama, Yusuke Suzuki, and Tomoyuki Uchida

Multiple Model Approach to Machine Learning

Authenticating ANN-NAR and ANN-NARMA Models Utilizing Bootstrap Techniques

Nor Azura Md. Ghani, Saadi bin Ahmad Kamaruddin, Norazan Mohamed Ramli, and Ali Selamat

Method for Aspect-Based Sentiment Annotation Using Rhetorical Analysis

Łukasz Augustyniak, Krzysztof Rajda, and Tomasz Kajdanowicz

On Quality Assessment in Wikipedia Articles Based on Markov Random Fields

Rajmund Kleminski, Tomasz Kajdanowicz, Roman Bartusiak, and Przemyslaw Kazienko

Is a Data-Driven Approach Still Better Than Random Choice with Naive Bayes Classifiers?

Piotr Szymański and Tomasz Kajdanowicz

An Expert System to Assist with Early Detection of Schizophrenia

Sonya Rapinta Manalu, Bahtiar Saleh Abbas, Ford Lumban Gaol, Lukas, and Bogdan Trawiński

Author Index
Intelligent Information and Database Systems
9th Asian Conference, ACII DS 2017, Kanazawa, Japan,
April 3–5, 2017, Proceedings, Part II
Nguyen, N.T.; Tojo, S.; Nguyen, L.M.; Trawiński, B. (Eds.)
2017, XLIII, 827 p. 286 illus., Softcover
ISBN: 978-3-319-54429-8