

Contents

Invited Papers

Synergetic Artificial Intelligence and Social Robotics	3
Valery E. Karpov and Valery B. Tarassov	
Application of Intelligent Data Analysis Methods for Information Security Problems	16
Vadim Vagin, Sergey Antipov, Marina Fomina, and Oleg Morosin	
Cognitive Generator to Interpret Fuzzy Values	26
Vadim L. Stefanuk	
An Approach to Sensitivity Analysis of Inference Equations in Algebraic Bayesian Networks	34
Andrey A. Zolotin, Ekaterina A. Malchevskaya, Alexander L. Tulupyeu, and Alexander V. Sirotkin	
Data Mining and Knowledge Discovery in Intelligent Information and Control Systems	
Wind Speed NWP Local Revisions Using a Polynomial Decomposition of the General Partial Differential Equation	45
Ladislav Zjavka and Václav Snášel	
Overall Design of the SLADE Data Acquisition System	56
Todor Ganchev, Valentina Markova, Ivelin Lefterov, and Yassen Kalinin	
Improving the Accuracy of SVM Algorithm in Classification Problems with PCA Method	66
Jasmina Novakovic, Alempije Veljovic, Sinisa S. Ilic, and Vladimir Veljovic	
Methods and Program Tools Based on Prediction and Reinforcement Learning for the Intelligent Decision Support Systems of Real-Time . . .	74
A.P. Ereemeev and A.A. Kozhukhov	

Practical Application of the Original Method for Artificial Neural Network's Training	84
Alexander N. Tsurikov and Alexander N. Guda	
Intellectual Subsystems for Collecting Information from the Internet to Create Knowledge Bases for Self-Learning Systems	94
E.A. Leonov, Yu. A. Leonov, Yu. M. Kazakov, and L.B. Filippova	
Comparison of Authentication Methods on Web Resources	104
Antonina Komarova, Alexander Menshchikov, Alexander Negols, Anatoly Korobeynikov, Yuriy Gatchin, and Nina Tishukova	
Dynamic Models of Self-organization Through Mass Behavior in Society	114
Boris Sokolov, Dmitry Verzilin, Tatiana Maximova, and Irina Sokolova	
Analysis and Control of Hybrid Diagrammatical Workflows	124
Alexander Afanasyev, Nikolay Voit, Oksana Timofeeva, and Vyacheslav Epifanov	
Analysis of Design-Technology Workflows in the Conditions of Large Enterprise	134
Alexander Afanasyev, Nikolay Voit, Maria Ukhanova, and Irina Ionova	
Neural Remodelling of Objects with Variable Structures	141
P.V. Saraev, S.L. Blyumin, A.V. Galkin, and A.S. Sysoev	
Combined Maximum Principle as the Basis of Intellectualization of Control Systems for a Suspension of Vehicles	150
Andrey Kostoglotov, Sergey Lazarenko, Igor Derabkin, Oksana Kuznetcova, and Alexey Yachmenov	
Ontological Modeling, Semantic Technologies and Knowledge Engineering	
Ontological Support of Design Thinking in Developments of Software Intensive Systems	159
P. Sosnin, A. Pushkareva, and V. Negoda	
Towards Intelligent Measurement in Railcar On-Line Monitoring: From Measurement Ontologies to Hybrid Information Granulation System	169
Sergey M. Kovalev, Valery B. Tarassov, Alexander I. Dolgiy, Igor D. Dolgiy, Maria N. Koroleva, and Agop E. Khatlamadzhiyan	
Calculation of the Function Objects as the Systems Formal Theory Basis	182
Sergey Igorevich Matorin and Aleksander Gennadievich Zhikharev	

Step Theories of Active Logic and Extended Logical Programs	192
Igor Fominykh and Michael Vinkov	
Fuzzy Graphs, Fuzzy Networks and Fuzzy Inference for Planning and Cognitive Modelling	
Algorithms of Sequential Pattern Generation with Noise using Stochastic and Fuzzy Models	205
Maria A. Butakova, Andrey V. Chernov, and Alexander N. Guda	
Fuzzy Adaptive Routing in Multi-service Computer Networks under Cyber Attack Implementation	215
Igor Kotenko, Igor Saenko, and Sergey Ageev	
About Transformations of a Numerical Time Series Using a Linguistic Variable	226
Tatyana Afanasieva, Yriy Egorov, and Nikolay Savinov	
Adaptive Approach for Anomaly Detection in Temporal Data Based on Immune Double-Plasticity Principle	234
Sergey M. Kovalev, Andrey V. Sukhanov, Maya V. Sukhanova, and Sergey V. Sokolov	
Prediction Properties of Attractors Based on Their Fuzzy Trend	244
Natalya N. Filatova, Konstantin V. Sidorov, and Pavel D. Shemaev	
Partial Discharge Pattern Classification Based on Fuzzy Signatures . . .	254
Michal Prilepok and Tomas Vantuch	
An Examination of an Entropy Based Features on Partial Discharge Pattern	265
Tomas Vantuch, Marek Lampart, and Michal Prilepok	
The Hybrid Model of the Weakly Formalized Dynamic Process Based on the Fuzzy Production System	276
Alexey Lyashchenko, Vladimir Ruban, and Zoya Lyashchenko	
Application of Fuzzy Asymmetric GARCH-Models to Forecasting of Volatility of Russian Stock Market	286
Alexander Lepskiy and Artem Suevalov	
An Approach to Fuzzy Hierarchical Clustering of Short Text Fragments Based on Fuzzy Graph Clustering	295
Pavel V. Dudarin and Nadezhda G. Yarushkina	
Comparative Analysis of the Inference Methods Based on the Fuzzy Truth Value for the MISO-Structure Systems	305
Vasiliy G. Sinuk and Vladimir M. Polyakov	

Optimal Allocation Centers in Second Kind Fuzzy Graphs with the Greatest Base Degree	312
Alexander Bozhenyuk, Stanislav Belyakov, Margarita Knyazeva, and Igor Rozenberg	
Fuzzy Control Laws in the Basis of Solutions of Synthesis Problems of the Combined Maximum Principle	322
Andrey Kostoglotov, Sergey Lazarenko, Igor Deryabkin, Alexander Kuzin, Igor Pugachev, and Olga Manaenkova	
A Fuzzy Propositional Logic with Temporal Intervals	330
Gerald S. Plesniewicz	
Evolutionary Modeling, Bionic Algorithms and Computational Intelligence	
Bacterial Foraging Optimization for VLSI Fragments Placement	341
Dmitry Zaporozhets and Daria Zaruba	
Hybrid Approach for VLSI Fragments Placement	349
Liliya Kureichik, Vladimir Kureichik Jr., Vladimir Kureichik, Dmitrii Leschanov, and Daria Zaruba	
An Optimization Algorithm for Simulating Smart-Grid Means for Distribution Grid Balancing	359
Nikolay Nikolaev, Stanislav Yordanov, and Rosen Vasilev	
Specifying Optimal Maintenance Factor in Internal Lighting Applications	370
Vultchan Gueorgiev	
Use of Irregular Exact Measurements in a Problem of an Adaptive Filtration	379
Marianna V. Polyakova, Aleksandra A. Bayandurova, and Sergey V. Sokolov	
VLSI Planning Based on the Ant Colony Method	388
Boris K. Lebedev, Oleg B. Lebedev, Ekaterina O. Lebedeva, and Andrey I. Kostyuk	
A New Way of Decomposing Search Domain in a Global Optimization Problem	398
Maxim Sakharov and Anatoly Karpenko	
Cognitive Technologies on the Basis of Sensor and Neural Networks	
Neural Sensorless Control of Induction Motor	411
Emil Y. Marinov and Zhivko S. Zhekov	

FPGA Implementation of the Locally Recurrent Probabilistic Neural Network	419
Nikolay Dukov, Todor Ganchev, and Dimitar Kovachev	
Approach to the Construction of a Systemic Concept	429
Y. Rogozov	
Probabilistic Models, Algebraic Bayesian Networks and Information Protection	
Approach to Identifying of Employees Profiles in Websites of Social Networks Aimed to Analyze Social Engineering Vulnerabilities	441
Nikita Shindarev, Georgiy Bagretsov, Maksim Abramov, Tatiana Tulupyeva, and Alena Suvorova	
Analysis of Suitability of Five Statistical Methods Applied for the Validation of a Monte Carlo X-Ray Based Software Packages	448
Neli Kalcheva, Anna Zagorska, Nikolay Dukov, and Kristina Bliznakova	
Optimization of the Monte Carlo Raytracing Settings for LED Luminaires Photometric Analysis	457
Plamen Tsankov and Milko Yovchev	
Modeling of Marketing Processes Using Markov Decision Process Approach	468
Ondřej Grunt, Jan Plucar, Markéta Štáková, Tomáš Janečko, and Ivan Zelinka	
Image Recognition and Emotion Modeling	
Event Recognition on Images by Fine-Tuning of Deep Neural Networks	479
Dmitry Yudin and Bassel Zeno	
Artificial Neural Network for Identification of Signals with Superposed Noises	488
Ivelina Balabanova, Georgi Georgiev, and Stela Kostadinova	
New Approach to Steganography Detection via Steganalysis Framework	496
Jakub Hendrych, Radim Kunčický, and Lačezar Ličev	
Evaluation of Cepstral Coefficients as Features in EEG-Based Recognition of Emotional States	504
Firgan Feradov, Iosif Mporas, and Todor Ganchev	

Electrical Impedance Distribution in Human Torax: A Modeling Framework	512
Radek Hrabuska, Veronika Cedivodova, Michal Prauzek, Jakub Hlavica, and Jaromir Konecny	
Automated Sound Generation by Image Color Spectrum with Harmony Creation Based on User Ratings	520
N.A. Nikitin, V.L. Rozaliev, Yu. A. Orlova, and A.V. Zaboleeva-Zotova	
Transformation of Elements of Geoinformation Models in the Synthesis of Solutions	526
Stanislav Belyakov, Marina Belyakova, Alexander Bozhenyuk, and Igor Rozenberg	
Pipes Localization Method Based on Fuzzy Hough Transform	536
Egor Pugin, Arkady Zhiznyakov, and Alexei Zakharov	
Author Index	545

Proceedings of the Second International Scientific
Conference "Intelligent Information Technologies for
Industry" (IITI'17)

Volume 1

Abraham, A.; Kovalev, S.; Tarassov, V.; Snasel, V.;
Vasileva, M.; Sukhanov, A. (Eds.)

2018, XVI, 547 p. 194 illus., Softcover

ISBN: 978-3-319-68320-1