

CONTENTS

Section 1. Fuzzy Graphs, Metagraphs and Networks

1. The Development of the Metagraph Data and Knowledge Model
Yuriy Gapanyuk 1-7
2. Metagraphs with Time-Logical Restrictions
Gerald Pleznevich, Valery Tarassov 8-19
3. Logic of Estimates for Fuzzy Logics Sentences
Gerald Plesniewicz Inference method and tuning of a neuro-fuzzy system with fuzzy inputs on a graphic processor
Vasiliy Sinuk, Maxim Panchenko 20-28

Section 2. Possibilistic and Probabilistic Models

4. The Problem of Possibility-Probability Optimization with Constraints on the Possibility/Necessity-Probability and Probability-Possibility/Necessity
Alexander Yazenin, Iliia Soldatenko 29-36
5. Learning an Ontology Of Text Data
Vladimir Gorodetsky, Olga Tushkanova 37-44
6. Development of a System for Finding Extremist Texts
Vadim Moshkin, Dmitry Fadeev, Nadezhda Yarushkina 45-52
7. An Approach to Building a Probabilistic Model of Spreading a Social Engineering Attack between Two Users
Anastasiia Khlobystova, Maxim Abramov, Alexander Tulupyev 53-58

Section 3. Non-Classic, Hybrid and Synergy Intelligent Systems

8. Models of Explanation in Intelligent Data Analysis
Michael Zabezhailo 59-63
9. Ontological Infrastructures for Intelligent Problem Solving
Valeriya V. Gribova, Elena A. Shalfeeva 64-70
10. Spatial Modeling of Resources, Events and Situations in Complex Dynamic Systems by Methods and Tools of Cognitive Semiotics and Geoinformatics
Alexander Kolesnikov, Sophiya Rumovskaya, Soldatov, Eric Jasinski 71-83

Section 4. Soft Measurement and Computing

11. Explanatory Artificial Intelligence, Results and Prospects
Alexey Averkin 84-95
12. Convolutional Development of Artificial Intelligence Methodologies and Measurement Science on the Basis of Regularizing Bayesian Approach
Svetlana Prokopchina 96-110
13. Monitoring and Decision Support System for Traffic Safety on Bridges
Sergei Koltunov, Maria Koroleva 111-119
14. Optimization of the Rules Base of Genetic Fuzzy Systems
Azizbek Yusupbekov, Shukhrat Gulyamov, Khurshit Turaev 120-125
15. The Use of MATLAB for Working with Big Data on the Example of Processing Information from the World Network of Magnetic Observatories INTERMAGNET
Anatoly Korobeynikov 126-131

16. Use of Artificial Intelligence Methods in Processing Geophysical Data Related to Detection of the Shore Effect in Natural Variations of the Electric Field
Valery Ismagilov, Anatoly Korobeynikov 132-137
17. A Method of Soft Evaluation of the Dynamics of the Trainee Thinking Activity
Natalya Filatova, Natalya Bodrina, Mark Voronkov, Pavel Klyuev, Konstantin Sidorov ..138-144

Section 5. Intelligent Agents and Robots

18. An Approach to Modeling the Behavior of Artificial Entities
Gennady Vinogradov 145-151
19. Models of Robots Teams Behavior
Alexander Kulinich 152-160
20. Intelligent Control for Dual-Purpose Robot-Manipulators Based on Combining Neural Network and Fuzzy Methods
Vadim Borisov, Andrei Sokolov, Victor Luferov 161-166
21. Structure of a Multicomponent Hybrid Model for Intelligent Control of Sequential Robot-Manipulators
Andrei Sokolov 167-172
22. Reinforcement Learning in the Intelligent Robot Control Task
Dmitry Dobrynin 173-179
23. Adaptive Movement Control of a Collective of Mobile Robots Deployed in a Line
Gennady Veselov, Boris Lebedev, Oleg Lebedev 180-185
24. Infrastructure Development for Designing a Bio-Inspired Underwater Robot
Artem Khanbekian, Valery Karpov, Vitaly Vorobiev 186-193
25. Application of Moral Norms in Behavior Modelling of Artificial Agents
Valery Karpov, Petr Sorokoumov 194-200

Section 6. Neural Network

26. Neural Network Cryptographic Obfuscation for Trusted Cloud Computing
Vladimir Eliseev, Ekaterina Miliukova, Sergey Kolpinskiy 201-207
27. Situation Monitoring Based on a Bimodal Model of the World
Aleksander Kharlamov, Roman Zharkoy 208-213
28. Multilingual Neural Machine Translation System for 7 Turkic-Russian Language Pairs
Aidar Khusainov, Dzhavdet Suleymanov 214-219
29. Self-Supervised Training for the Tatar Speech Recognition System
Aidar Khusainov, Dzhavdet Suleymanov, Ilnur Mukhametzyanov 220-225
30. Application of Artificial Neural Network Technologies for Detection Denial of Service Attacks
Denis Soloviev, Yuri Gatchin, Vladimir Polyakov 226-229
31. Development and Testing of a Pedestrian Traffic Monitoring System on a Convolutional Neural Network Platform
Aleksandr Mezhenin, Vladimir Polyakov, Vera Izvozchikova 230-237

Section 7. Evolutionary Computation and Bioinspired Algorithms

32. Model of Evolution and Learning of Kauffman's NK networks. Features of the Interaction between Learning and Evolution
Vladimir Red'ko 238-243
33. Hybrid Method for Solving the Placement Problem
Muhanad Yaser, Leonid Gladkov, Nadezhda Gladkova..... 244-253
34. Comparative Evaluation of Algorithms for Automatic Construction of Nonlinear Models Based on Metaheuristic Programming with Gene Expression
Oleg Monakhov, Emilia Monakhova..... 254-259

Section 8. Industrial, Special and Dual-Use Artificial Intelligence Technologies

35. Intelligent Welding Control System
Sergei Bolotov, Konstantin Zakharchenkov, Evgeniy Makarov, Vladislav Furmanov..... 260-267
36. Theoretical and Applied Basis of Constructing the Intelligent Control System for Protection of Spacecrafts from Anthropogenic (Technogenic) Particles Impact
Valery Kemaykin, Boris Palyukh, Artur Belov..... 268-275
37. Management of Industrial and Technological Processes of Complex Systems Based on Modified Neuro-Fuzzy Petri Nets
Alexander Bobryakov, Anton Misnik, Siarhei Prakapenka 276-283
38. Hardware and Software Complex for the Formation of Speech-Like Noise
Maria Moiseeva 284-288
39. Intelligent Assessment of the Impact of Hypervelocity Anthropogenic Particles on a Spacecraft
Vladimir Meshkov, Natalya Filatova..... 289-295
40. table Algorithms for Adaptive Control and Adaptation of Uncertain Dynamic Objects Based on Reference Models
Nodirbek Yusupbekov, Husan Igamberdiev, Uktam Mamirov..... 296-302

Section 9. Medical Intelligent Systems

41. Cloud-Based Platform For Drug Therapy Planing
Valeriya Gribova, Roman Kovalev, Dmitry Okun 303-310
42. Machine Learning Models for Atrial Fibrillation Prediction after Coronary Artery Bypass Graft Surgery
Boris Geltser, Vladislav Rublev, Karina Shakhgelyan, Bogdan Shcheglov,
Svetlana Shcheglova 311-323
43. Features of Implementation of Prototype Integrated Expert System for Comprehensive Diagnosis of Breast Diseases: Integration with Image Processing
Galina Rybina, Andrey Grigoryev 324-330
44. Implementation of Fuzziness of the Hereditary Diseases Clinical Picture in an Expert Diagnostic System
Nikolay Blagosklonov 331-335
45. Platform for in Vitro Angiogenesis Research
Glotov V.A., Demidov A.L., Fedorov G.N., Prudnikov I.M, Zhilkin V.V 336-342
46. Gradient Boosting Predictive Model of Ovarian Response for Hormonal Therapy in Infertility Treatment
Kseniia Tikhaeva, Natalia Nesterova, Evgeny Tomilov, Stanislav Sotkin, Anna Muhina,
Pavel Zavyalov, Elena Rosyuk 343-348