

2018 IEEE 13th International Scientific and Technical Conference on Computer Sciences and Information Technologies (CSIT 2018)

**Lviv, Ukraine
11-14 September 2018**

**Volume 1
Pages 1-487**



**IEEE Catalog Number: CFP18D36-POD
ISBN: 978-1-5386-6465-0**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18D36-POD
ISBN (Print-On-Demand):	978-1-5386-6465-0
ISBN (Online):	978-1-5386-6464-3

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

CONTENTS

PLENARY SESSION

1. **Education and Research in Informatics and Automation at Faculty of Mining and Geology** XV
Roman Danel, Michal Řepka, Jan Valíček, Milena Kušnerová and Marta Harničárová
2. **Decentralized Load Balancing Consensus Control in Distributed Computing Systems**..... XXII
Leonid Lyubchyk, Yuri Dorofieiev
3. **Queueing models of traffic control and performance evaluation in large Internet topologies** XXVI
Tadeusz Czachorski
4. **The content web-accessibility of information and technology support in a complex system of educational and social inclusion** XXVII
Tetiana Shestakevych, Volodymyr Pasichnyk, Nataliia Kunanets, Mykola Medykovskyy, Natalya Antonyuk
5. **From Inductive to Intelligent Modeling** XXXII
Volodymyr Stepashko
6. **Self-organizing Inductive Modeling for Probabilistic Electricity Price Forecasting** XXXVI
Frank Lemke
7. **Investigation of Fuzzy Inductive Modeling Method in Forecasting Problems**XL
Yuriy Zaychenko
8. **Building Classifiers with GMDH for Health Social Networks (DB AskaPatient)** XLV
Liliya Akhtyamova, John Cardiff, Mikhail Alexandrov, Olexiy Koshulko

INTELLIGENT MANAGEMENT TECHNOLOGIES SECTION

1. **Game Method for Coalitions Formation in MultiAgent Systems**..... 1
Petro Kravets
2. **Web-application Development for Tasks of Prediction in Medical Domain**.....5
Mariia Mazorchuck, Viktoriia Dobriak, Dmytro Chumachenko
3. **Evolutionary Technique of Completing Specialists Teams for IT Company Projects** N/A
Olha Yehorova
4. **Fuzzy Rule-Base Approach For Design Wastewater Treatment System** N/A
Oksana Yehorova
5. **Geoinformational System for Risk Assessment Visualization**17
Sergiy Yemelyanenko, Yuriy Rudyk, Andriy Ivanusa
6. **Structuring the fuzzy knowledge base of the IT industry impact factors**21
Myroslava Bublyk, Anastasiya Karpiak, Olga Rybyska, Yurii Matseliukh
7. **Development Of Face Recognition Module For A "Smart Home" System Using A Remote Server**25

Kazarian Artem, Teslyuk Vasyl, Tsmots Ivan	
8. Modeling of the processes of stakeholder involvement in command management in a multi-project environment	29
Dotsenko Nataliia, Chumachenko Dmytro, Chumachenko Igor	
9. Information technology of operative formation and evaluation of relevant alternatives of decision-making in human-machine systems of critical application	33
V. Peredery, M. Voronenko, E. Borchik, J. Krejci Jan	
10. Model and Architecture for Virtual Library Information System.....	37
Bohdan Rusyn, Victoria Vysotska, Liubomyr Pohreliuk	
11. A Decomposition Approach To Hierarchical Management Of Cloud Data Center Services	42
Eduard Zharikov, Oleksandr Rolik, Sergii Telenyk	
12. Development of an intelligent system for diagnosing the technical condition of the heat power equipment	48
Zaporozhets A.A., Serhiienko R.V., Eremenko V.S., Ivanov S.A.	
13. Proactive Simulation in Production Line Control.....	52
Pavel Vazan, Jaroslav Znamenak, Martin Juhas	
14. Comparison of the Scalarization Approaches in Many-Objective Simulation-Based Optimization in Production System Control	56
Pavel Vazan, Zuzana Cervenanska	
15. Algebraic Modeling of Error-Correcting Codes for Info-Communication Systems	60
Daniel Skrybaylo-Leskiv, Volodymyr Riznyk	
16. Structure Construction of Acoustic Emission System for Diagnostic of Friction Clusters	64
Anzhelika Stakhova, Volodymyr Kvasnikov	
17. Classification of Images of Visual Objects Based on Statistical Relevance Measures of Their Structural Descriptions	68
Gorokhovatskyi Volodymyr, Gadetska Svitlana	
18. Machine-learning identification of extragalactic objects in the optical-infrared all-sky surveys.....	72
Vladislav Khramtsov, Vladimir Akhmetov	
19. Information Technologies for Providing ProjectProcess Management in Law Enforcement Structures	76
Ivanna Dronyuk, Iryna Moyseyenko, Jerzy Kuck	
20. The Method of Encoding Information in the Images Using Numerical Line Bundles	80
Oleg Riznyk, Yurii Kynash, Olexandr Povshuk, Yurii Noga	
21. Research and automation of the process of wastewater treatment electrocoagulation	84
Andrii Safonyk, Ivan Targoniy, Martyniuk Yuriy, Andrii Bomba	
22. Information Technology of Laser Measurement System Creation for Automated Control Dynamics of Glue Drying in Polygraphy	89

Lubomyr Sikora, Natalya Lysa, Roman Martsyshyn, Yulia Miyushkovych, Rostyslav Tkachuk, Bohdan Durnyak

23. Technologies of Development Laser Based System for Measuring the Concentration of Contaminants for Ecological Monitoring93

Lubomyr Sikora, Natalya Lysa, Roman Martsyshyn, Yulia Miyushkovych, Bohdana Fedyna, Bohdan Durnyak

24. Learning space conceptual model for computing games developers97

Andrii Biloshchytskyi, Alexander Kuchansky, Yurii Andrashko, Olena Bielova

25. A mathematical model for optimizing the work of the primary care medical institution with taking into account the consumers opinion 103

Oksana Boyko , Olesia Chaban

26. Empirical Research of Autonomous Robot Control System 108

Piotr Lipiński, Krzysztof Lichy, Jakub Santorek

27. Vertically-parallel method and VLSI-structure for sorting of one-dimensional arrays 112

Ivan Tsmots, Oleksa Skorokhoda, Volodymyr Antoniv, Vasyl Rabyk

28. Programmable Flexible System 117

Orest Ivakhiv, Petro Mushenyk, Markiyan Nakonechnyi, Oleksandr Viter

CYBER-PHYSICAL SYSTEMS SECTION

29. Development of Background Radiation Monitoring System based on Arduino Platform 121

Andriy Holovatyy, Vasyl Teslyuk, Mykhaylo Lobur, Yaroslav Sokolovskyy, Sofia Pobereyko

30. Experimental Analysis of Rotary Speed Observers for Electric Drive with Cascaded Control System 125

Mykhaylo Lobur, Serhiy Shcherbovskykh, Krzysztof Kozłowski, Dariusz Pazderski

31. Personal Documents Identification System Development Using Neural Network 129

Svitlana Popereshnyak, Olha Suprun, Oleh Suprun, Tadeusz Wieckowski

32. Tensor Model of Fault-Tolerant QoS Routing with Support of Bandwidth and Delay Protection 135

Oleksandr Lemeshko, Oleksandra Yeremenko, Maryna Yevdokymenko

33. Development of Arduino-Based Embedded System for Detection of Toxic Gases in Air 139

Andriy Holovatyy, Vasyl Teslyuk, Mykhaylo Lobur, Sofia Pobereyko, Yaroslav Sokolovsky

MATHEMATICAL MODELING SECTION

34. Galerkin Method and Qualitative Approach for the Investigation and Numerical Analysis of Some Dissipative Nonlinear Physical Systems..... 143

Petro Pukach, Volodymyr Il'kiv, Zinovii Nytrebych, Myroslava Vovk, Natalya Shakhovska, Pavlo Pukach

35. Mathematical modeling of the heat-mass-exchange in anisotropic environments taking into account the boundary of phase transition.....	147
Yaroslav Sokolovskyy, Iryna Boretska, Bogdana Gayvas, Igor Kroshnyy	
36. Simulation of the Heat Conduction Process in the Claydite-Block Construction with Taking into Account the Fractal Structure of the Material.....	151
Volodymyr Shymanskyi, Yuriy Protsyk	
37. Detection of Defects in Printed Circuit Boards by flood-fill Algorithm and Distributed Cumulative Histogram	155
R.A. Melnyk, Yu.I. Kalychak	
38. Modeling the characteristics of complex projects using parallel computing	160
Dmitriy Kritskiy, Karatanov Alexander, Pashchuk Juliia, Sergei Koba	
39. The Mesh Technology for Improving of End Nodes Updating for Lorawan Network	164
Alexander Trunov, Alexander Malcheniuk	
40. Development of the Mathematical Model for Sheet Blanks Forming Calculation Using Simulation in ANSYS Software	169
Oleg Trotsko, Sergii Shlyk	
41. The mathematic model of and method for solving a generalized mixed boundary problem of heat exchange for the empty isotropic rotary body	N/A
Mykhailo Berdnyk	
42. Using A Systematic Approach In The Process Of The Assessment Problem Analysis Of The Staff Capacity Within The Health Care Institution	177
Oksana Mulesa, Fedir Geche, Anatoliy Batyuk, Ivan Myronyuk	
43. Cyber-Physical Systems Architectures and Modeling Methods Analysis for Smart Grids	181
Sergiy Korotunov, GalynaTabunshchyk, Carsten Wolff	
44. Non-linear Mathematical 3D Model of Determination of Temperature Field in Elements of Microelectronic Devices	N/A
Vasyl Havrysh, Lubov Kolyasa, Vasyl Loik	
45. Periodically non-stationary analytic signals and their properties	191
Ihor Javorskyj, Roman Yuzefovych, Pavlo Kurapov	

SOFTWARE ENGINEERING SECTION

46. An approach for the spatial analysis of solar energy potential: a case study for Lviv region	195
Petro Topylko, Igor Penyak, Bogdan Lybinsky	
47. Internet Social Environmental Platforms Data Representation	199
Oleg Mastykash, Andriy Peleshchyshyn, Solomiia Fedushko, Olha Trach, Yuriy Syerov	
48. Modeling of informational and technological support of the tourist profile formation process.....	203
Savchuk Valeriia, Lozynska Olga, Pasichnyk Volodymyr	
49. Mathematical Model and Software for Determination of Short – Term Strength of Anisotropic Composite Materials	207
Sofia Pobereyko, Yaroslav Sokolovskyy, Andriy Holovatyy, Bohdan Pobereyko	

50. Software Development and Modeling of the Work of Extrusion Rams with Elastic Compensators	N/A
Elena Balalayeva, Volodymyr Kukhar	
51. Evaluating the Software Requirements Specifications Using Ontology-Based Intelligent Agent	215
Tetiana Hovorushchenko, Olga Pavlova	
52. Queueing Modeling in the Course in Software Architecture Design	219
Vira Liubchenko	
53. Modelling decision-making processes in the field of individual tourism	223
Valeriia Savchuk, Volodymyr Pasichnyk	
54. Comparative Analysis of Event Propagation Methods on Android Platform	227
V. F. Emets, Jan Rogowski	
55. Augmented Reality in Education 4.0	231
Juhás Martin, Juhásová Bohuslava, Halenár Igor	
56. Development of Programming Learning Environment With Compiler Techniques	N/A
Sefa Aras, Eyup Gedikli, Ozcan Ozyurt	
57. Using the Random Forest classification for land cover interpretation of Landsat images in the Prykarpattya region of Ukraine	241
Olha Tokar, Olena Vovk, Lubov Kolyasa, Serhii Havryliuk, Mykola Korol	
58. The efficient computation of integer DCT based on cyclic convolutions	N/A
Ihor Prots'ko, Roman Rikmas, Vasyl Teslyuk	
59. A New Technique for Image Enhancement based on the Use of Mean Values for Subranges of Brightness.....	249
Sergei Yelmanov, Yuriy Romanyshyn	
60. Principles of Mashup System Semistructured Data Processing	254
Irina Pelekh	
61. Control of multi-channel multiphase queuing system based on optimal aggregation methodology	259
Taisa Borovska, Inna Vernigora, Irina Kolesnyk, Andriy Kushnir	
62. Fast coordinate cross-match tool for large astronomical catalogue	266
Volodymyr Akhmetov, Sergii Khlamov, Artem Dmytrenko	
63. Development of a Cloud-Based Web Geospatial Information System for Agricultural Monitoring Using Sentinel-2 Data	270
Volodymyr V. Hnatushenko, Kateryna Yu. Sierikova, Ivan Yu. Sierikov	
64. Methods of data processing restriction in ERP systems	274
Pavlo Zhezhnych, Dmytro Tarasov	
65. Applying Neural Networks to Football Matches Results Forecasting	278
Tetyana Korotyeyeva, Ruslan Tushnytskyk, Volodymyr Kulyk	
66. Assessment of Perceived Contrast for Complex Images	283
Sergei Yelmanov, Yuriy Romanyshyn	
67. Development and Performance Evaluation of a Remote Vision-Based Heart Rate Monitoring System	288
Vasyl Kurylo, Vasyl Varyshchuk	

68. Adaptive Method for Assessment and Selection of Software Architecture in Flexible Techniques of Design.....	292
Ihor Bodnarchuk, Volodymyr Lisovyi, Olexandr Kharchenko, Iryna Galai	
69. Streaming Process Discovery for Lambda Architecture-based Process Monitoring Platform	298
Anatoliy Batyuk, Volodymyr Voityshyn	
70. Mobile survey system for participants of trade fairs and conference events	302
Andrzej Kułakowski, Ludomir Tuszyński	
71. Distributed System for Detecting the Malware in LAN	306
George Markowsky, Oleg Savenko, Anatoliy Sachenko	
72. Research of Ateb-Gabor filter in biometric protection systems	310
Mariya Nazarkevych, Nataliya Lotoshynska, Volodymyr Buriachok, Sergiy Dmytryk	
73. Technique of Automated Construction of States and Transitions Graph for the Analysis of Technical Systems Reliability	314
Yuriy Bobalo1, Vitaliy Yakovyna, Maksym Seniv, Ivan Symets	

ARTIFICIAL INTELLIGENCE SECTION
--

74. Quasi-Relief Method of Informative Features Selection for Classification	318
Sergey Subbotin	
75. Multithresholding of Benchmark Images by A Novel Optimization Approach ...	322
Hasan KOYUNCU, Rahime CEYLAN	
76. The methods for evaluating the quality of images with different types of noise ..	326
Oleh Kosar, Nataliya Shakhovska	
77. Satellite Spectral Information Recognition Based on the Synthesis of Modified Dynamic Neural Networks and Holographic Data Processing Techniques	330
Vasyl Lytvyn, Ivan Peleshchak, Victoria Vysotska, Roman Peleshchak	
78. Architectural ontology designed for intellectual analysis of e-tourism resources .	335
Vasyl Lytvyn, Victoria Vysotska, Yevhen Burov, Andriy Demchuk	
79. The hybrid intelligent diagnosis method for the multiUAV-based forest fire-fighting response system	339
Maryna Zharikova and Vladimir Sherstjuk	
80. The Method of Web-resources management under conditions of uncertainty based on fuzzy logic	343
Aleksandr Gozhyj, Iryna Kalinina, Victoria Vysotska, Victor Gozhyj	
81. Feature selection based on parallel stochastic computing	347
Andrii Oliinyk, Sergey Subbotin, Valerii Lovkin, Serhii Leoshchenko, Tetiana Zaiko	
82. Violent Crime Detection System	352
Yaroslav Dorogyy, Vadym Kolisnichenko, Kseniia Levchenko	
83. Analysis of the problem of homonyms in the hyperchains construction for lexical units of natural language	356
Grygorii Chetverikov, Oleksii Puzik, Olena Tyshchenko	
84. Modeling and signals processing using cyclic random functions.....	360
Lupenko Serhii, Orobchuk Oleksandra, Stadnik Nataliya, Zozulya Andrii	

85. Improving the Performance of Spiral Local Binary Pattern using Edge Information	364
Nihan Kazak, Mehmet Koc	
86. Knowledge-based Recommendation System for Embedded Systems Platform-oriented Design	368
Sergey Subbotin, Olga Gladkova, Anzhelika Parkhomenko	
87. On Class of Genetic Algorithms in Optimization Problems on Combinatorial Configurations	374
Sergiy Yakovlev, Oleksiy Kartashov, Olga Yarovaya	
88. Hybrid evolutionary decision-making model based on neural network and immune approaches	378
Mykola Korablyov, Natalia Axak, Dmytro Soloviov	
89. Algorithms of blended learning in IT education	382
Olena Kovalenko, Yevhen Palamarchuk	
90. Axiomatic-deductive strategy of the organization of the content of academic discipline in the field of information technologies using the ontological approach	387
Lupenko Serhii, Pasichnyk Volodymyr, Kunanets Nataliia	
91. Architecture of System for Content Integration and Formation Based on Cryptographic Consumer Needs	391
Vasyl Lytvyn, Volodymyr Kuchkovskiy, Victoria Vysotska, Oksana Markiv, Viktor Pabyrivskyy	
92. Credibility of system self-checking when tests are performed randomly	396
Viktor Mashkov, Jiří Fišer, Volodymyr Lytvynenko, Maria Voronenko	
93. Classification of Imbalanced Classes using the Committee of Neural Networks ..	400
Anastasiya Doroshenko, Roman Tkachenko	
94. GPU Accelerated Image Binarization Based on First and Second Order Integral Images	404
Dariusz Puchala, Kamil Stokfiszewski	
95. The new approaches of heterogeneous data consolidation	408
Nataliia Melnykova, Uliana Marikutsa, Uriy Kryvenchuk	
96. Automatic segmentation of Abdominal Aortic Aneurysm	412
S. Habib, J. Dehmeshki	
97. Classification of Remote Sensing Images Based on their Random Point Fields ...	416
Rostyslav Kosarevych, Oleksij Lutsyk, Bohdan Rusyn	
98. Hybrid Intelligent Information Technology for Biomedical Image Processing	420
Oleh Berezsky, Serhiy Verbovyi, Oleh Pitsun	
99. Determining fake statements made by public figures by means of artificial intelligence	424
Mykhailo Granik, Volodymyr Mesyura, Andrii Yarovyi	
100. The special ways of application of neural networks for medical information processing	428
Nataliia Melnykova, Pavlo Mukalov, Dmytro Koziy	
101. Use of Machine Learning Technologies for the Electric Consumption Forecast ..	432
Mykola Medykovskyy, Olena Pavliuk, Roman Sydorenko	

102. Effectiveness of GPU Realizations of Parallel Prefix-Sums Computation Algorithms	436
Kamil Stokfiszewski, Dariusz Puchala, Mykhaylo Yatsymirskyy	

INTERNATIONAL WORKSHOP ON INDUCTIVE MODELING

103. Construction of Intelligent Information Technology for Inductive Modeling of Complex Processes on the Basis of Recurrent-and-Parallel Computations	440
Serhiy Yefimenko	
104. Metamodeling as a Way to Universalization of Inductive Modeling Tools	444
Yevgeniya Savchenko, Volodymyr Stepashko	
105. Inductive GMDH-Based Approach to Hierarchical Forecasting	448
Gregory Ivakhnenko	
106. On Modeling-Based Elements of an Intelligent System for Cost-Effective Dispatching of Energy Islands with Photovoltaic Sources	452
Volodymyr Osypenko, Viktor Kaplun	
107. A New Method of Comparing Cooling Curves to Recognize the Casting Quality	457
Yevgeniya Savchenko, Volodymyr Stepashko, Olena Tokova	
108. Simple Models for Assessment of Phrase Tonality	461
Angels Catena, Mikhail Alexandrov, Dmitry Stefanovskiy	
109. Usage of Inductive Algorithms for Building a Search Results Ranking Model Based on Visitor Rating Evaluations	466
Viacheslav Zosimov, Oleksandra Bulgakova	
110. Method of Structural Identification of a Model for Recurrent Laryngeal Nerve Localization	470
Mykola Dyvak, Natalia Porplytsya, Volodymyr Tymets, Yurii Maslyiak	
111. Adolescents Psychological Well-Being Estimation Based on a Data Mining Algorithm	475
S.V. Tyulyupo, A.A. Andrakhanov, B.A. Dashieva, A.V. Tyryshkin	
112. Data reconstruction of seasonal changes of amylolytic microorganisms amount in copper polluted soils	479
Olha Moroz, Volodymyr Stepashko	
113. The Use of Inductive Methods for Determination of the Binding Affinity of Interacting Biological Molecules	483
Iryna Lurie, Volodymyr Lytvynenko, Volodymyr Osypenko, Maria Voronenko	
Authors index	488

2018 IEEE 13th International Scientific and Technical Conference on Computer Sciences and Information Technologies (CSIT 2018)

**Lviv, Ukraine
11-14 September 2018**

**Volume 2
Pages 1-240**



**IEEE Catalog Number: CFP18D36-POD
ISBN: 978-1-5386-6465-0**

CONTENTS

COMPUTATIONAL LINGUISTICS SECTION

1. Synonymic Connections of Cognitive Verbs in English and Ukrainian Languages: Applied Aspect	1
Iryna Karamysheva, Roksolana Nazarchuk, Maryna Fedoruk	
2. Authorship Attribution by Differentiation of Phonostatistical Structures of Styles	5
Iryna Khomytska, Vasyl Teslyuk	
3. Method of Textual Information Authorship Analysis Based on Stylometry	9
Victoria Vysotska, Vasyl Lytvyn, Mariya Hrendus, Solomiya Kubinska, Oksana Brodyak	
4. Encoding of natural language information on the basis of the power set	17
Oleg Bisikalo, Yuriy Ivanov, Nataliia Karevina	
5. Application of Saaty Method while Choosing Thesaurus View Model of the “Smart city” Subject Domain for the Improvement of Information Retrieval Efficiency..	21
Kunanets Nataliia, Matsiuk Halyna	
6. The methodology of frequency dictionaries to the instructions to medical products. (based on trilingual corpus).....	26
Roksolana-Yustyna Perkhach, Yuliia Shyika	
7. The preliminary stage of the algorithm for detecting information and psychological manipulation in online communities.....	30
Andriy Peleschyshyn, Zoriana Holub, Ivanna Holub	
8. Authorship Identification of the Scientific Text in Ukrainian with Using the Lingvometry Methods	34
Victoria Vysotska, Olga Kanishcheva, Yuliia Hlavcheva	
9. Identifying specific roles of users of social networks and their influence methods	39
Andriy Peleshchyshyn, Oleksandr Markovets, Volodymyr Vus, Solomiia Albota	
10. A Model of Description of Grammar by Modified Algebra of Algorithms	43
Volodymyr Ovsyak, Oleksandr Ovsyak, Julia Petruszka	
11. Discourses Surrounding Feminism in Ukraine: a Sentiment Analysis of Twitter Data	47
Marianna Dilai, Olena Levchenko	
12. Quantitative Equivalence Level In Poetry Translation	51
Ihor Kulchytskyi, Larysa Tsiokh, Mariia Malaniuk	
13. Application of computer technologies in conceptual analysis	55
Nataliia Romanyshyn	
14. Optimization of the Mathematical Model of Factors of Composite design of Infographic	58
Oleksandr Tymchenko, Svitlana Vasiuta, Orest Khamula	
15. The “Individual workbench for a corpus linguist” information system	62
Volodymyr Pasichnyk, Nataliia Kunanets, Ivan Kozak	

**INTERNATIONAL WORKSHOP ON INFORMATION MODELING, DATA AND
KNOWLEDGE ENGINEERING**

16. Mathematical model of people cooperation in social groups in the context of election technologies	68
Andriy Bomba, Kunanets N.E., Yuriy Turbal, Volodymyr Pasichnyk	
17. Information Technologies of Internet Devices and BigData in the "Smart Cities" Projects	72
Duda Oleksii, Matsiuk Oleksandr, Karpinski Mikolaj, Veretennikova Nataliia, Kunanets Nataliia, Pasichnyk Volodymyr	
18. Learning Analysis as a Tool for Predicting Student Performance	76
Volodymyr Verhun, Anatoliy Batyuk, Volodymyr Voityshyn	
19. Ontological Approach In The Formation Of Effective Pipeline Operation Procedures	80
Volodymyr Pasichnyk, Vasyl Lytvyn, Nataliia Kunanets, Roman Vovnyanka, Yuriy Bolyubash, Antonii Rzhеuskyi	
20. Method of adapting content by the volume of transmitted information on the Internet	84
Victor A. Krisilov, Katherine Gorodnichaya, Ngoc Huy Vu	
21. Methods of searching for association dependencies in multidimensional databases	88
Mykola Fisun, Hlib Horban, Mykhailo Dvoret'skyi	
22. Information Taxonomy and Ontology for Situational Management	94
Oleksii Kovalenko	
23. Model of the effectiveness of Google Adwords advertising activities	98
Grzegorz Szymanski, Piotr Lipinski	
24. Numerical Simulation and Analysis of Systems with Memory Based on Integro-differentiation of Fractional Order	102
Yaroslav Sokolovskyy, Maryana Levkovych, Olha Mokrytska, Yaroslav Kaplunskyy	
25. Content Monitoring Method for Cut Formation of Person Psychological State in Social Scoring	106
Liliya Chyrun, Iaroslav Kis, Victoria Vysotska, Lyubomyr Chyrun	
26. Model of Touristic Information Resources Integration According to User Needs	113
Jun Su, Vasyl Lytvyn, Victoria Vysotska, Anatoliy Sachenko, Dmytro Dosyn	
27. Structural Anomaly Matrix as a New Instrument for Evaluating the Topology of Complex Networks in the Context of the Big Data Analytics	N/A
Artem Potebnia	
28. Ontology Application in Context of Mastering the Knowledge for Students	123
Taras Lendyuk, Oksana Bodnar, Sergey Rippa, Anatoliy Sachenko	
29. Methods of Statistical Research for Information Managers	127
Roman Kaminskyi, Nataliia Kunanets, Antonii Rzhеuskyi, Andrii Khudyi	
30. Ant Colony Optimization for Matching Class Diagrams	132
Mojeeb Al-Rhman AL-Khiaty	
31. Prospects for Using Cloud Data Warehouses in Information Systems	136
Nataliya Boyko, Nataliya Shakhovska	

32. The Informational Analytical Technologies of Synthesis of Optimal Spatial Configuration	140
Sergiy Yakovlev, Oleksii Kartashov, Kyril Korobchynskyi	
33. The application of AntConc concordancer in linguistic researches	144
Nataliia Kunanets, Olena Levchenko, Anna Hadzalo	

INTERNATIONAL WORKSHOP ON PROJECT MANAGEMENT

34. The Blended Mental Space: Mobility and Flexibility as characteristics of project/program success	148
Sergey Bushuyev, Olena Verenych	
35. Discrete-event modeling of the critical parameters of functioning the products of infrastructure projects at the planning stage	152
Oleh Zachko, Dmytro Kobylkin	
36. The Project Management Methodology and Guide Formation's Method	156
Igor Kononenko, Svitlana Lutsenko	
37. Sustainability and agility in project management: contradictory or complementary?	160
Vladimir Obradović, Marija Todorović, Sergey Bushuyev	
38. Selective Dissemination of Information as a Communication Tool for E-Science Users.....	165
Antonii Rzheuskyi, Nataliia Kunanets, Nataliia Veretennikova, Roman Vaskiv	
39. Application of the Lean startup methodology in project management at launching new innovative products	169
Nataliia Veretennikova, Roman Vaskiv	
40. Approach to the creation of a comprehensively competent project-oriented organization.....	173
Voitenko Oleksandr, Timinsky Alexander	
41. Building information modeling. A management tool for Smart City	177
C. Mgbere, V.A.Knyshenko, A.B. Bakirova	
42. Emotional intelligence in project management in the transition to a behavioral economy	183
Rusan Nadiia, Bushuyev Sergey	
43. Decision making by the analysis of project risks based on the FMEA method	187
Kritsky D. N., Druzhinin E.A., Pogudina O. K., Kritskaya O.S.	
44. Managing the energy-saving projects portfolio at the metallurgical enterprises ...	191
Kiyko Sergey, Druzhinin Evgeniy, Prokhorov Oleksandr	
45. 3-Level Approach to the Projects Planning	195
Pavlo Teslenko, Svitlana Antoshchuk, Dmytro Bedrii, Hanna Lytvynchenko	
46. Information Support Of The Virtual Research Community Activities Based On Cloud Computing	199
Kazarian Artem, Roman Holoshchuk, Nataliia Kunanets, Volodymyr Pasichnyk, Antonii Rzheuskyi	
47. Recommendation System "Virtual Reference"	203
Antonii Rzheuskyi, Nataliia Kunanets, Mykola Stakhiv	

48. Anticipative Approach to Project Management for the Creation of Distributed Information Systems	207
Viktor Morozov, Olena Kalnichenko, Iuliia Liubyma	
49. Model of organizational innovative development management cycles on the basis of knowledge, competences and values	211
Kutsenko Maryna, Boyko Evgeniya	
50. Information Analysis of Procedures for Choosing a Future Specialty Using Cognitive Cards	215
Volodymyr Pasichnyk, Mariia Nazaruk, Nataliia Kunanets, Nataliia Veretennikova, Ruslan Nebesnyi	
51. Advisory System «Admission» for College Graduates.....	221
Krupa S. M, Kunanets N.E.	
52. IT Projects Management Driving by Competence	226
Natalia Bushuyeva, Denis Bushuiev, Victoriia Busuieva, Igor Achkasov	
53. Reduction in discrete optimization problem	230
S. K. Chernov, L. S. Chernova, S. D. Titov	
54. Management Priority of ICT Projects in Programme of Development Organization in Complex Dynamically Varying Environment	234
Igbal Babayev, Jahid Babayev	
Authors index.....	239