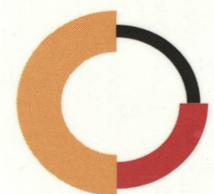
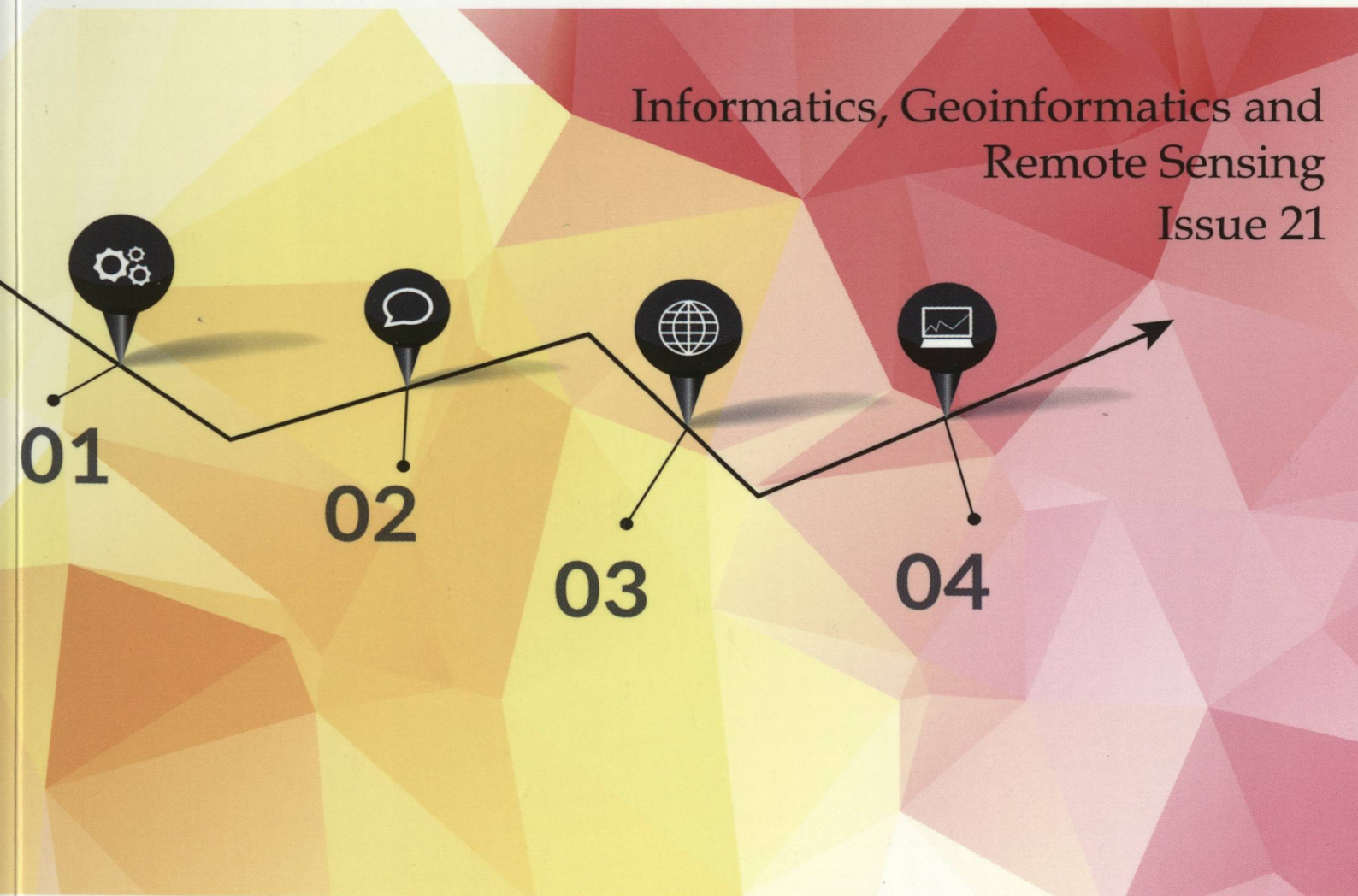


17th INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC GEOCONFERENCE SGEM 2017

CONFERENCE PROCEEDINGS
VOLUME 17

Informatics, Geoinformatics and
Remote Sensing
Issue 21



INFORMATICS
GEOINFORMATICS

**17th INTERNATIONAL MULTIDISCIPLINARY
SCIENTIFIC GEOCONFERENCE**

S G E M 2 0 1 7

CONFERENCE PROCEEDINGS

VOLUME 17



INFORMATICS, GEOINFORMATICS AND REMOTE SENSING

ISSUE 21

INFORMATICS

GEOINFORMATICS

29 June - 5 July, 2017

Albena, Bulgaria

DISCLAIMER

This book contains abstracts and complete papers approved by the Conference Review Committee. Authors are responsible for the content and accuracy.

Opinions expressed may not necessarily reflect the position of the International Scientific Council of SGEM.

Information in the SGEM 2017 Conference Proceedings is subject to change without notice. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of the International Scientific Council of SGEM.

Copyright © SGEM2017

All Rights Reserved by the International Multidisciplinary Scientific GeoConferences SGEM

Published by STEF92 Technology Ltd., 51 “Alexander Malinov” Blvd., 1712 Sofia, Bulgaria

Total print: 5000

17

ISBN 978-619-7408-01-0

ISSN 1314-2704

DOI: 10.5593/sgem2017/21

**INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC GEOCONFERENCE SGEM
Secretariat Bureau**

E-mail: sgem@sgem.org | URL: www.sgem.org

ORGANIZERS AND SCIENTIFIC PARTNERS

- THE CZECH ACADEMY OF SCIENCES
- LATVIAN ACADEMY OF SCIENCES
- POLISH ACADEMY OF SCIENCES
- RUSSIAN ACADEMY OF SCIENCES
- SERBIAN ACADEMY OF SCIENCES AND ARTS
- SLOVAK ACADEMY OF SCIENCES
- NATIONAL ACADEMY OF SCIENCES OF UKRAINE
- INSTITUTE OF WATER PROBLEM AND HYDROPOWER OF NAS KR
- NATIONAL ACADEMY OF SCIENCES OF ARMENIA
- SCIENCE COUNCIL OF JAPAN
- THE WORLD ACADEMY OF SCIENCES (TWAS)
- EUROPEAN ACADEMY OF SCIENCES, ARTS AND LETTERS
- ACADEMY OF SCIENCES OF MOLDOVA
- MONTENEGRIN ACADEMY OF SCIENCES AND ARTS
- CROATIAN ACADEMY OF SCIENCES AND ARTS, CROATIA
- GEORGIAN NATIONAL ACADEMY OF SCIENCES
- ACADEMY OF FINE ARTS AND DESIGN IN BRATISLAVA
- TURKISH ACADEMY OF SCIENCES
- NIZHNY NOVGOROD STATE UNIVERSITY OF ARCHITECTURE AND CIVIL ENGINEERING, RUSSIAN FEDERATION
- BULGARIAN ACADEMY OF SCIENCES
- BULGARIAN INDUSTRIAL ASSOCIATION
- BULGARIAN MINISTRY OF ENVIRONMENT AND WATER

INTERNATIONAL SCIENTIFIC COMMITTEE

Informatics, Geoinformatics and Remote Sensing

- PROF. ING. ALEŠ ČEPEK, CSC., CZECH REPUBLIC
- PROF. G. BARTHA, HUNGARY
- PROF. DR. DAMIR MEDAK, CROATIA
- PROF. PETER REINARTZ, GERMANY
- PROF. JAN KAZMIERCZAK, POLAND
- PROF. DR. JÓZSEF ÁDAM, HUNGARY
- PROF. RUI MIGUEL MARQUES MOURA, PORTUGAL

- PROF. DR. ING. KAREL PAVELKA, CZECH REPUBLIC
- PROF. DR. MARCEL MOJZES, SLOVAKIA
- PROF. VADIM ZHMUD, RUSSIA
- ASSOC. PROF. DR MILAN HOREMUZ, SWEDEN
- ASSOC. PROF. KRYSZYNA JANUSZKIEWICZ, POLAND
- DR. TIBERIU RUS, ROMANIA
- DR. MARKO KREVS, SLOVENIA

CONFERENCE PROCEEDINGS CONTENTS**SECTION INFORMATICS**

- 1. 3D MODELLING AND RAPID PROTOTYPING TOOLS FOR CUSTOMIZED FOOTWEAR INSOLES**, Bogdan Sarghie, Mariana Costea, Aura Mihai, Ana Maria Vasilescu, Gheorghe Asachi Technical University of Iasi, Romania..3
- 2. 3D PRINTING WITH DEFORMABLE MATERIALS**, Catalin Gheorghe Amza, Aurelian Zapciu, Diana Popescu, Politehnica University of Bucharest, Romania9
- 3. A METHOD FOR ESTIMATING THE CAPACITY OF THE BUFFER MEMORY OF A ROUTER IN THE PRIORITY MANAGEMENT OF HETEROGENEOUS TRAFFIC WITH ARBITRARY DISTRIBUTION OF PACKET LENGTHS**, Kalinin I.V., Muravyeva-Vitkovskaya L.A., ITMO University, Russia 15
- 4. A NONLINEAR ANISOTROPIC DIFFUSION-BASED EDGE DETECTION SCHEME**, Tudor Barbu, Institute of Computer Science, Romanian Academy, Iasi branch, Romania21
- 5. A PHP-BASED APPLICATION TO RANDOMIZATION OF PATIENTS INTO GROUPS FOR CONVENTIONAL AND NEW METHOD OF TREATMENT**, Dr.Jiri Blahuta, Silesian univerzity in Opava, Czech Republic.....29
- 6. A PROGRAMMING MODEL FOR CONTEXT-AWARE APPLICATIONS IN DIGITAL ECOSYSTEMS**, Alexandru Averian, Politehnica University of Bucharest, Romania.....37
- 7. A SIMPLIFIED APPROACH TO DESIGNING OF COMPARTMENTAL MODELS OF SPATIAL-TEMPORAL DYNAMICS AND MATTER CYCLING IN AQUATIC ECOSYSTEMS**, Assoc Prof. Dr. Victor Selyutin, Assoc. Prof. Dr. Irina Shabas, Southern Federal University, Russia45
- 8. A UNIFIED MODEL FOR CONVERTING TEXT REQUIREMENTS INTO FORMAL MODELS**, Yulia Lipko, Alexander Sviridov, Svetlana Belikova, Southern Federal University, Russia.....53
- 9. ACTIVE IMAGE AUTHENTICATION AND FORGERY LOCALIZATION FOR MOBILE DEVICES**, Robert Alexandru Dobre, Radu Ovidiu Preda, Ionut Pimnog, Cristina Oprea, Politehnica of Bucharest, Romania61
- 10. AN APPROACH TO APPLICATION PROGRAMMING INTERFACES DESIGN FOR BANDWIDTH MANAGEMENT IN MULITI-ACCESS EDGE COMPUTING**, Evelina Pencheva, Technical University-Sofia, Bulgaria69

11. HARDWARE COMPUTATIONAL UNITS DESIGN WITH COMBINED DEBUG CAPABILITIES, Vasiliy Pinkevich, Roman Yanalov, Alexey Platunov, ITMO University, Russia	77
12. AN IMPROVED ALGORITHM BASED ON THE NEURAL ARCHITECTURES FOR ESTIMATING THE RISK OF BANKRUPTCY OF THE BULGARIAN INSURANCE COMPANIES, Doru Constantin, Emilia Clipici, University of Pitesti, Romania.....	85
13. ANALYSIS OF THE POSSIBILITIES OF USING THE INTERNET OF THINGS IN COMPLAINTS MANAGEMENT SYSTEM, M.Sc.Eng. Beata Szczerba, Prof. Barbara Bialecka, Silesian University of Technology, Poland	95
14. APPLICATION OF AN ADAPTIVE CONTROL METHODS IN COAL PROCESSING INDUSTRY, Jan Kacur, Milan Durdan, Patrik Flegner, Marek Laciak, Technical University of Kosice, Slovakia	103
15. APPLICATIONS OF MATLAB SOFTWARE FOR STUDYING COMMUTATION OVER-VOLTAGES OF INDUCTIVE LOADS, Titu Niculescu, Dragos Pasculescu, University of Petrosani, Romania	111
16. APPROACH TO BUILDING CONFIGURABLE INFORMATION SYSTEMS BASED ON SERVICE-ORIENTED ARCHITECTURE, Alexander Sviridov, Sergey Kucherov, Southern Federal University, Russia	119
17. ASPECTS ABOUT THE DETERMINATION OF THE PROCESS CAPABILITY OF MANUFACTURING ON THE QUALITY CERTIFICATION PRODUCT, Mihut Nicoleta Maria, Radulescu Constanta, University Constantin Brancusi of Targu Jiu, Romania.....	125
18. ASSESSMENT OF GPU COMPUTATIONAL ENHANCEMENT TO WAVE FIELD MODELING, Damian Gwizdz Anna Franczyk, AGH University of Science and Technology, Poland	133
19. ASYNC-CALL OPERATION OF P/T PETRI MULTIPROCESS MULTINETS AND ITS PROPERTIES, Ivo Martinik, VSB-Technical University of Ostrava, Czech Republic	141
20. AUGMENTED REALITY EXPERIENCE FOR QUALITY INSPECTION, Aurelian Zapciu, Catalin Gheorghe Amza, Diana Popescu, Politehnica University of Bucharest, Romania.....	153
21. AUTOMATIC FLUOROGRAPHY SEGMENTATION METHOD BASED ON HISTOGRAM OF BRIGHTNESS SUBMISSION IN SLIDING WINDOW, Tomakova R.A., Filist S.A., Pykhtin A.I., Southwest State University, Russia	159

22. AUTOMATIC IDENTIFICATION AT RAILWAY AS DATA SOURCE FOR SPATIAL ANALYSIS , Kamil Peterk, Dr. Libor Kavka, Ludmila Flokova, College of Logistics, Czech Republic	167
23. AUTOMATIC TRAIN COMPOSITION , Assoc. Prof. Dr. Oldrich Kodym, Dr. Libor Kavka, Dr. Michal Sedlacek, College of Logistics, Czech Republic	175
24. AN APPROACH OF LOWER-LEVEL COMMUNICATION LINE IMPLEMENTATION OF AUTOMATED DISPATCH CONTROL SYSTEMS OF DISTRIBUTED FACILITIES , Prof. Alexander Belousov, PhD Yury Koshlich, Igor Gvozdevsky, Artyom Grebenik, Belgorod State Technological University named after V.G. Shukhov, Russia	183
25. COMPARATIVE ANALYSIS OF THE BIOMECHANICAL CHARACTERISTICS OF SPORTS TECHNIQUE USED IN DISMOUNTS AND PERFORMANCES ACHIEVED BY JUNIOR GYMNASTS IN UNEVEN BARS EVENTS , Vladimir Potop, Olivia Carmen Timnea, Marius Stanescu, Ecological University of Bucharest - Faculty of Physical Education and Sport, Romania.....	191
26. COMPARATIVE ASSESSMENT OF THE QUALITY OF THE RESULTS OF ORTHODONTIC TREATMENT IN CLINICS OF DIFFERENT OWNERSHIP FORMS , St. Elena Vinogradova, St. Evgeniia Ivanova, PhD Sergey Vinogradov, PhD Roman Fadeev, St. Aleksandr Trifonov, ITMO University, Russia	199
27. COMPARING OF APPROXIMATIONS OF MAGNETIZATION CURVES FOR NUMERICAL MODELING OF EDDY CURRENTS FIELDS , ass. Prof. Alexey Glebov, ass. Prof. Sergey Karpov, Prof. Sergey Karpushkin, Prof. Evgeniy Malygin, Prof. Mikhail Krasnyanskiy, Tambov State Technical University, Russia ...	209
28. COMPARISON OF CONSTRAINED OPTIMIZATION FUNCTIONS , BOGDAN Constantin , Marin Silviu, MAMARA Nicoleta Loredana , GRECEA Danut, University of Petrosani, Romania.....	217
29. COMPUTER MODEL OF NON-STATIONARY HEAT EXCHANGE , Prof. Evgeniy Tugolukov, Prof. Vladimir Nemtinov, ass. Prof. Sergei Alexeev, ass. Prof. Sergei Karpov, Alexander Zakharov, Tambov State Technical University, Russia	223
30. CORRELATIVE ANALYSIS OF THE KINEMATIC AND DYNAMIC CHARACTERISTICS OF SPORTS TECHNIQUE USED IN ACROBATIC ELEMENTS AND PERFORMANCES ACHIEVED BY JUNIOR GYMNASTS IN BALANCE BEAM EVENTS , Vladimir Potop, Olivia Carmen Timnea, Marius Stanescu, Ecological University of Bucharest - Faculty of Physical Education and Sport, Romania.....	231
31. DATA WAREHOUSE AS AN INFORMATICS TOOL SUPPORTING A STUDY ON THE EFFECTIVENESS OF USING MINING MACHINES , Jaroslaw Brodny, Magdalena Tutak, Kinga Stecula, Silesian University of Technology, Poland	239

32. DESIGN, IMPLEMENTATION AND SIMULATION OF AN ON-BOARD CAR PARKING AUTOMATIC SYSTEM, Assoc.Prof. Dr. Adrian Moise, Assoc.Prof. Dr. Gabriela Bucur, Assoc.Prof. Dr. Cristina Popescu, Petroleum-Gas University of Ploiesti, Romania.....	247
33. DETECTOR OF THE STEGANOGRAPHY IMAGES WITH THE APPLICATION OF ARTIFICIAL NEURAL NETWORK, Ing. Jakub Hendrych, Prof. Lacezar Licev, Ing. Radim Kuncicky, VSB-Technical University of Ostrava, Czech Republic.....	255
34. DEVELOPMENT OF NEW METHODS OF THE ORGANIZATION OF TRAFFIC ON THE BASIS OF THE ANALYSIS OF POINTS OF A DELAY, Dmitriy Elkin, Yury Rogozov, Sergey Kucherov, Southern Federal University, Russia.....	263
35. ANALYSIS OF THE PROPOSED SEMANTIC APPROACH TO DESIGN OF INFORMATION SYSTEM INTERFACE, Alexander Belikov, Alexander Sviridov, Oksana Shevchenko, Southern Federal University, Russia.....	271
36. DIMENSIONING GATING SYSTEM FOR THE CASTING PRODUCED BY INVESTMENT CASTING AND ITS VERIFICATION VIA COMPUTER SIMULATION., assoc. prof.Ing. Peter Futas, PhD., prof. Ing. Alena Pribulova, PhD., assoc. prof. Jozef Petrik, PhD., Ing. Andrea Junakova, PhD., Technical University of Kosice, Slovakia	279
37. DSL-BASED APPROACH TO HARDWARE PIPELINES DESIGN, Assoc. Prof. PhD Pavel Kustarev, Postgrad. stud. Alexander Antonov, ITMO University, Russia	287
38. ESTIMATING MULTIDIMENSIONAL TIME SERIES ON KEY GLOBAL CROPS PRODUCTION IN BULGARIA, Kolyo Onkov, Delyana Dimova, Nikola Tsaikin, Diana Stoyanova, Agricultural University Plovdiv, Bulgaria	295
39. EXACT GLOBAL OPTIMIZATION, BOGDAN Constantin, Marin Silviu, MAMARA Nicoleta Loredana, GRECEA Danut, University of Petrosani, Romania.....	303
40. EXISTENTIAL GENERALIZATION IN TIL, Mgr. Marek Mensik Ph.D., Bc. Jakub Kermaschek, doc. RNDr. Ludek Cienciala Ph.D., VSB-Technical University of Ostrava, Czech Republic	311
41. EXPERIMENTAL ASSESSMENT OF COMMUTATION OVER-VOLTAGES IN INDUCTIVE CIRCUITS ON CONNECTION, Dragos Pasculescu, Titu Niculescu, University of Petrosani, Romania	319
42. EXPERIMENTAL ASSESSMENT OF COMMUTATION OVER-VOLTAGES IN INDUCTIVE CIRCUITS ON DISCONNECTION, Titu Niculescu, Dragos Pasculescu, University of Petrosani, Romania	327

- 43. FOOTWEAR MODULAR DESIGN FOR ELDERLY WOMEN**, Mariana Costea, Bogdan Sarghie, Aura Mihai, Ana Maria Vasilescu, Gheorghe Asachi Technical University of Iasi, Romania.....335
- 44. GPU-BASED HEAT TRANSFER MODEL**, Sandor Szenasi, Imre Felde, Obuda University, Hungary343
- 45. HYBRID EXPERT SYSTEM FOR PREDICTION AND PROSPECTING OF GOLD ORE DEPOSITS IN THE ARCTIC ZONE**, Irina Chizhova, Alexander Volkov, Institute of Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry, RAS, Russia351
- 46. IMPULSIVE NOISE REMOVAL IN COLOR IMAGES BASED ON THE LOCAL NEIGHBORHOOD EXPLORATION BY GEODESIC DIGITAL PATHS**, Bogdan Smolka, Silesian University of Technology, Poland359
- 47. INFLUENCE OF A BIRD MODEL SHAPE ON THICKNESS OF A HELICOPTER WINDSHIELD DURING A BIRD STRIKE - NUMERICAL ANALYSIS**, Assoc. Prof. Dr Janusz Cwiklak, Air Force Academy Poland, Poland...367
- 48. INFORMATION AND COMMUNICATION TECHNOLOGIES IN COMPLAINTS MANAGEMENT SYSTEM**, .Sc.Eng.Beata Szczerba, Prof.Barbara Bialecka, Silesian University of Technology, Poland377
- 49. INTELLIGENT INFORMATION SYSTEM OF IMPROVING THE RELIABILITY AND SECURITY OF CHEMICAL PRODUCTIONS**, Prof. Dr. Alexander Egorov, Prof. Dr. Tatyana Savitskaya, Assist. Prof. Pavla Mikhaylova, Assist. Prof. Artem Goranskiy, Andrey Dementienko, D. Mendeleev University of Chemical technology of Russia, Russia385
- 50. MAGNETIC ANOMALIES DISCOVERY FOR ARCHAEOLOGICAL SITES**, Natalia Grafeeva, Elena Mikhailova, Mariya Pashkova, Sofya Ilinykh, Saint Petersburg State University, Russia393
- 51. MANAGERIAL DECISION MAKING FOR PUBLIC TRANSPORT SYSTEMS USING SIMULATION TECHNOLOGY**, Prof.Dr. Vladimir Nemtinov, Assoc.Prof.Dr. Yulia Nemtinova, Assoc.Prof.Dr. Andrey Borisenko, Prof.Dr. Sergey Karpushkin, Prof.Dr. Sergey Egorov, Tambov State Technical University, Russia.....401
- 52. MEASURING AND SIMULATION OF POINT SPREAD FUNCTION AS A BASIC PROPERTY OF AN OPTICAL DEVICE**, Dr. Tomas Nahlik, The Institute of Technology and Business in Ceske Budejovice, Czech Republic409
- 53. MEMBRANE AGENTS SIMULATING BOOLEAN CIRCUITS**, Ludek Cienciala, Lucie Ciencialova, Marek Mensik, Silesian univerzity in Opava-Faculty of Philosophy and Science, Czech Republic.....417

54. METHOD OF CREATING PROCEDURES FOR INSERTING DATA IN STRUCTURE-INDEPENDENT DATABASES BASED ON ACTIVITY DRIVEN APPROACH, Andrey Grishchenko, Yury Rogozov, Julia Lipko, Southern Federal University, Russia.....	425
55. METHODS AND MODELS FOR BUILDING A DISTRIBUTED MOBILE EMERGENCY MONITORING SYSTEM, Prof.Dr.-hab. Oleksandr Kuzomin, Data Strategy Manager Oleksii Vasylenko, Kharkiv National University of Radio Electronics, Ukraine	433
56. PID CONTROL OF AN INERTIA WHEEL INVERTED PENDULUM, Vlad Niculescu, Robert Alexandru Dobre, Politehnica of Bucharest, Romania.....	441
57. MICROTOOLS BASED ON THE RELATIONAL DATA MODEL – REPRESENTATION OF ENTITIES IN A SPREADSHEET, Szczesniak Bartosz, Silesian University of Technology, Poland	447
58. MODEL OF A QUANTUM PROCESSING DEVICE AND A QUANTUM PROGRAMMING FRAMEWORK, Farid Ablayev, Danila Fetisov, Alexandr Terentyev, Andrey Urmanchev, Alexander Vasiliev, Kazan (Volga Region) Federal University, Russia.....	455
59. MODELING DATA ON TAXES AND AVERAGE ANNUAL SALARY IN BULGARIA, Delyana Dimova, Agricultural University Plovdiv, Bulgaria.....	463
60. NBIC CONVERGENCE OF GEOINFORMATION SYSTEMS IN SAINT-PETERSBURG’S INFORMATION SPACE, Oleg S. Lobanov, Vladimir F. Minakov, Tatyana E. Minakova, Vlada A. Schugoreva, Saint Petersburg State University of Economics, Russia	471
61. NUMERICAL NONLINEAR GLOBAL OPTIMIZATION, BOGDAN Constantin, Marin Silviu, MAMARA Nicoleta Loredana, GRECEA Danut, University of Petrosani, Romania	479
62. ON CABARET SCHEME FOR INCOMPRESSIBLE FLUID FLOW PROBLEMS WITH A FREE SURFACE, Prof. Dr. Valentin Gushchin, Dr. Vasilii G. Kondakov, Institute for Computer Aided Design Russian Academy of Science, Russia	485
63. ONE GPSS MODEL OF A HOTEL REVENUE MANAGEMENT SYSTEM, Svetlana Vasileva, Varna University of Management, Bulgaria.....	493
64. OPPORTUNITIES OF THE GPSS WORLD EXTENDED EDITOR AND UNIVERSAL EDITOR OF FORMS FOR APPLICATION FOR TRAINING OF STUDENTS, Svetlana Vasileva, Varna University of Management, Bulgaria.....	501

65. PASSENGER TRAFFIC ANALYSIS BASED ON ST. PETERSBURG PUBLIC TRANSPORT , Assoc. Prof. Dr.Natalia Grafeeva, Assoc. Prof. Dr.Elena Mikhailova, Dr.Elena Nogova, Innokenty Tretyakov, Saint Petersburg State University, Russia	509
66. ON HIERARCHY OF THE POSITIONED ECO-GRAMMAR SYSTEMS WITH GIVEN NUMBERS OF AGENTS , Miroslav Langer, Alice Kelemenova, Silesian univerzity in Opava, Czech Republic	517
67. PROPERTIES IMPROVEMENT OF 3D PRINTED PARTS BY FDM TECHNOLOGY , Assoc. Prof. Juraj Beniak, Assoc. Prof. Peter Krizan, Milos Matus PhD., Slovak University of Technology Bratislava, Slovakia	525
68. RANSOMWARE CRISIS MANAGEMENT AND CRISIS SCENARIO SIMULATIONS , Karol Fabian, Peter Kottman, Michal Dobrik, Matej Bel University, Slovakia	533
69. RESEARCH AND DEVELOPMENT OF THE APPLICATION FOR AUTOMATION OF THE TAXI DISPATCHER WORKPLACE. , Ilya Mikhailov, PhD Assoc. Prof. Pavel Balakshin, ITMO University, Russia.....	541
70. SHEWHART CONTROL CHARTS AS A TOOL FOR ANALYZING THE REVOLUTIONS OF DRILLING EQUIPMENT , Patrik Flegner, Jan Kacur, Milan Durdan, Marek Laciak, Technical University of Kosice, Slovakia.....	549
71. SIMULATION OF FILLING AND SOLIDIFICATION OF SPECIFIC CASTING MADE FROM GRAY CAST IRON , assoc. prof. Ing. Peter Futas, PhD., prof. Ing. Alena Pribulova, PhD., assoc. prof. Jozef Petrik, PhD., Ing. Andrea Junakova, PhD., Technical University of Kosice, Slovakia	557
72. SIMULATION OF INTERFERENCES IN MOBILE NEXT GENERATION ACCESS NETWORK - NGA , David Grenar, Brno University of Technology, Czech Republic.....	565
73. SUPERVISION OF THE STOREHOUSES OF EXPLOSIVES IN KOSOVO THROUGH GPS , Enis Berisha, Afrim Mehmetaj, University of Pristina, Kosovo ...	573
74. PROGRAM AND ALGORITHMIC COMPLEX FOR SYNTHESIS OF DYNAMIC PHOTO ANALYSIS OF THE AGING DEGREE OF RUBBERS , Daniil V. Sklyarevskiy, Anatoly A. Khvostov, Victor I. Ryazhskih, Igor A. Khaustov, Voronezh State University of Engineering Technologies, Russia	581
75. SOFTWARE-ALGORITHMIC COMPLEX FOR THE SYNTHESIS OF CATALYST OF ETHYLENE ACETOXYLATION PROCESS , Assos. Prof. Denis V. Arapov Prof Olga V. Karmanova Prof Sergey G. Tikhomirov Senior Lecturer Vladimir V. Denisenko, Voronezh State University of Engineering Technologies, Russia	587

- 76. SOLUTION OF SELECTION PROBLEMS WITH FUZZY PARAMETERS,** Mihail G. Matveev, Alexander O. Shevlyakov, Mikhail E. Semenov, Peter A. Meleshenko, Voronezh State University of Engineering Technologies, Russia.....595
- 77. SPECIALIZED CASE TOOLS FOR THE DEVELOPMENT OF INFORMATION-CALCULATING APPLICATIONS,** Arslan Enikeev, Victor Georgiev, Mahfoodh Bilal Ahmed Mohammed, Kazan (Volga Region) Federal University, Russia.....603
- 78. STATISTICAL ANALYSIS OF STEGANALYTICAL METHOD FOR STEGHIDE DETECTION,** Ing. Radim Kuncicky, Ing. Jakub Hendrych, Prof. Lacezar Licev, VSB-Technical University of Ostrava, Czech Republic611
- 79. STUDENTS' BEHAVIOR PATTERNS IN LMS ELOGIKA DETECTED BY FCA,** Mgr. Marek Mensik, Ph.D., Mgr. Pavla Drazdilova, Ph.D., Bc. Jakub Kermaschek, VSB-Technical University of Ostrava, Czech Republic617
- 80. SUPERVISION OF THE TRAIN MOVEMENT IN KOSOVO THROUGH CTC (COMMUNICATION TRAIN CONTROL) SYSTEM,** Mr.sc. Afrim Mehmetaj, Mr.sc. Enis Berisha, University of Pristina, Kosovo.....625
- 81. STUDY REGARDING THE CONVERGENCE OF THE STRUCTURAL MODELS IN COMPUTER-AIDED DESIGN,** PhD. Vergil Muraru, Math. Petru Cardei, PhD. Student Sebastian Muraru, Researcher Raluca Sfiru, PhD. Cornelia Muraru-Ionel, INMA Bucharest, Romania.....633
- 82. TEACHING THE C ++ PROGRAMMING LANGUAGE AT MOSCOW STATE UNIVERSITY OF GEODESY AND CARTOGRAPHY THROUGH THE GEODESIC PROBLEMS AND PROGRAMS,** Zablotskii V.R., Moscow State University of Geodesy and Cartography, Russia641
- 83. USING TEXT MINING TO CLASSIFY RESEARCH PAPERS,** Snezhana Sulova, Latinka Todoranova, Bonimir Penchev, Radka Nacheva, University of Economics - Varna, Bulgaria.....647
- 84. THE IMPACT OF EMOTIONS ON CHANGES IN THE CORRELATION COEFFICIENT BETWEEN DIGITAL IMAGES OF THE HUMAN FACE,** Katarzyna Bobkowska, Artur Janowski, Marek Przyborski, Jakub Szulwic, Gdansk University of Technology, Poland.....655
- 85. THE METHOD OF ONTOLOGY-DRIVEN DATA MODELING AS A SENSE SPACE OF THE DOMAIN,** Sergey Kucherov, Yury Rogozov, Alexander Belikov, Southern Federal University, Russia665
- 86. SEMANTIC APPROACH TO INFORMATION SYSTEM USER INTERFACE DESIGN,** Svetlana Belikova, Yury Rogozov, Elena Borisova, Southern Federal University, Russia.....673

- 87. THE PROBABILITY DISTRIBUTION OF PACKET SIZE IN THE CORPORATE COMPUTER NETWORK**, Muravyeva-Vitkovskaya L.A., Kalinin I.V., Farashiani M.A., ITMO University, Russia681
- 88. THE SOFTWARE COMPLEX FOR COMPUTER SIMULATING THE OBSERVATION OF STARS FROM THE LUNAR SURFACE AND CALCULATION THEIR SELENOGRAPHICAL COORDINATES**, Petrova Natalia, Abdoulmjanov Tagir, Zagidullin Arthur, Nefediev Yrii, Andreev Alexey, Kazan (Volga Region) Federal University, Russia687
- 89. THE USE OF NETWORK PROTOCOLS FOR STEGANOGRAPHICAL PURPOSES**, Krajnik Lukasz Ambroziak Robert, Air Force Academy Poland, Poland695
- 90. THE USE OF SIMTALK PROGRAM FOR MODELLING DISCONNECTION OF RAIL VEHICLES IN THE MINERAL RAW MATERIALS MINING**, Gabriel Fedorko - Martin Vasil, Technical University of Kosice, Slovakia703
- 91. THE VERIFICATION OF MODELS FOR INDIRECT MEASUREMENT MELT TEMPERATURE IN STEELMAKING PROCESS**, Tawfik Mudarri, Marek Laciak, Jan Kacur, Patrik Flegner, Milan Durdan, Technical University of Kosice, Slovakia711
- 92. TRACEABILITY MODEL OF SUPPLY CHAIN**, Assoc. Prof. Dr. Oldrich Kodym, Dr. Michal Sedlacek, Ing. Blanka Kalupova, College of Logistics, Czech Republic.....719
- 93. UCG PROCESS VISUALIZATION**, Milan Durdan, Jan Kacur, Patrik Flegner, Marek Laciak, Technical University of Kosice, Slovakia727
- 94. UNMANNED HELICOPTER TAIL UNIT FEM ANALYSIS**, Peter Korba, Dalibor Kuzma, Michal Hovanec, Stanislav Szabo, Miriam Sekelova, Technical University of Kosice, Slovakia735
- 95. USING THE MULTILAYER NEURAL NETWORK FOR TASKS OF UPDATING THE USER INTERFACE**, Andrei G. Cherniltsev, Elena S. Gorbunova, Ural Federal University, Russia743
- 96. UTILIZATION AND IMPACT OF ICT ON SMES: THE CASE STUDY OF THE KOSOVO PRIVATE SECTOR AT FURNITURE AND METALWORKING INDUSTRY**, Fatmir Azemi, Roberto Lujic, Goran Simunovic, Bekim Maloku, University of Osijek, Croatia751

SECTION GEOINFORMATICS

- 97. 3D CAD SOLUTIONS IN DOCUMENT OF GEOLOGICAL STRUCTURE OF HARD COAL DEPOSIT IN UPPER SILESIAN COAL BASIN (POLAND),** Marek Marcisz, Daniela Ignacok, Daniel Knapik, Malwina Ostrowska-Lach, Silesian University of Technology, Poland.....761
- 98. 3D PRINTING FROM THE PAPER SHEETS,** Tomas Burian, Palacky University Olomouc-Faculty of Science, Czech Republic.....769
- 99. AN ACOUSTOOPTIC INTERRACTION AT INFRALOW FREQUENCIES,** Marat Khairtdinov, Gyulnara Voskoboinikova, Boris Poller, Alexander Britvin, Galina Sedukhina, Institute of Computational Mathematisc and Mathematical Geophysics Siberian Branch of RAS, Russia775
- 100. AN OVERVIEW OF DATA FROM DATASETS REGISTERED IN LATVIAN SPATIAL METADATA CATALOGUE,** Jurijs Holms, Gatis Vitols, Latvia University of Agriculture, Latvia783
- 101. ANALYSIS OF THE LOCAL ENVIRONMENTAL CONDITIONS OF LEGUMES USING GLOBAL DATASETS,** Dr. Brus Jan, Tomas Burian, assoc. prof. Vilem Pechanec, Dr. Martin Duchoslav, Dr. Petr Smykal, Palacky University Olomouc-Faculty of Science, Czech Republic791
- 102. APPLICATION OF GEOMATICS IN UNDERGROUND MINING,** Dr. Blachowski Jan, Dr. Gorniak-Zimroz Justyna, Dr. Milczarek Wojciech, Dr. Pactwa Katarzyna, Wroclaw University of Science and Technology, Poland799
- 103. APPLICATION OF NEW TECHNOLOGIES AND THE POSSIBILITY OF ONLINE DATA TRANSFER IN GEODESY AND CADASTRE,** Ing. Jana Zaoralova, Ph.D, Ing. Milan Kocab, MBA, VUGTK, v.v.i., Czech Republic811
- 104. APPLICATION OF THE HOUGH TRANSFORM FOR SUBSIDENCE TROUGHS DETECTION IN SAR IMAGES,** MSc Michal Klimczak, Dr Justyna Bala, AGH University of Science and Technology, Poland.....819
- 105. BOUNDARIES IN SPATIAL INFORMATION SYSTEMS – PROPOSAL OF CLASSIFICATION,** Kozakiewicz Ryszard, AGH University of Science and Technology, Poland.....827
- 106. CADASTRE ON-LINE AND ITS ENEMIES,** Dr Janusz Kosakowski, University of Warmia and Mazury in Olsztyn, Poland835
- 107. CLEANING OF MBES DATA USING CUBE ALGORITHM,** Artur Makar, Polish Naval Academy, Poland841

- 108. DATA SOURCE EVALUATION FOR SHORELINE DELINIATION APPLICATIONS**, Julia Ahlen, Stefan Seipel, Marie-Loise Kautz, University of Gävle Department of Industrial Development IT and Land Management, Sweden ...849
- 109. DEVELOPMENT OF TECHNOLOGY FOR ENVIRONMENTAL SAFETY CONTROL BASED ON GEO-INFORMATION SYSTEMS**, Prof. DSc. Eugene P. Istomin, Assoc. Prof. DSc. Valery M. Abramov, Prof. DSc. Vyacheslav G. Burlov, Assoc. Prof. DSc. A. G. Sokolov, PhD N.N. Popov, Russian State Hydrometeorological University Arctic and Subarctic Institute, Russia.....859
- 110. DIGITAL MODELING OF HEAVY MINERAL PLACER DEPOSITS FOR FORECASTING OF THEIR ECONOMIC PROSPECTS**, Nikolay Laverov, Irina Chizhova, Alexander Lalomov, Dmitry Khrushchov, Roman Chefranov, Institute of Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry, RAS, Russia867
- 111. ERROR MODEL IN MODELLING AND ESTIMATING MOVEMENT OF CYCLISTS**, Kamil Peterek, Assoc. Prof. Dr. Ales Ruda, Ludmila Flokova, Dr. Iveta Dockalikova, College of Logistics, Czech Republic875
- 112. EXPLORING SUBSET PROFILE AND VALIDATION PROCEDURES OF GEOGRAPHICAL MARKUP LANGUAGE (GML) FOR 3D AREAL PLAN INFORMATION**, Associate Professor Erling Onstein and Assistant Professor Sverre Stikbakke, Norwegian University of Science and technology, Norway883
- 113. FAST HEURISTIC ALGORITHM OF SEARCHING HAMILTONIAN PATH IN GRAPH**, Dalibor Bartonek, Jiri Bures, Jindrich Petrucha, Brno University of Technology, Czech Republic.....895
- 114. FEASIBILITY OF THERMAL ANOMALIES DETECTION FOR SMALL EARTHQUAKE (< 5.0 M)**, Assoc. Prof. Dr. Pisanu Wongpornchai, Dr. Chanida Suwanpravit, Chiang Mai University, Thailand903
- 115. FRACTAL ANALYSIS OF THE EARTH TOPOGRAPHIC MODELS USING MULTI-PARAMETRIC HARMONIC ANALYSIS**, Y.A. NEFEDYEV, A.O. ANDREEV, S.A. DEMIN, N.Y. DEMINA, Z.M.ANDREEVA, Kazan (Volga Region) Federal University, Russia.....913
- 116. GIS TOOL FOR GEOCHRONOLOGICAL TRACKING AND HISTORICAL DATA ANALYSIS**, Yan Ivakin, Misha Tsvetkov, St. Petersburg Institute for Information and Automation, Russia.....919
- 117. GPS TOOLS IN OBTAINING ORIENTATION OF PLANES - AN ATTEMPT OF CORRELATION WITH TRADITIONAL WAY**, Michal Michalak, University of Silesia - Faculty of Earth Sciences, Poland.....927

118. INFLUENCE OF DIFFERENT-SCALE FRACTURES ON ENERGY STATE OF HARD ROCK MASS, Iuliia Fedotova, Eduard Kasparyan, Nikolai Kuznetsov, MI of KSC RAS, Russia.....	935
119. INTEGRATED INFORMATION SYSTEM OF BUILDING STRUCTURES MONITORING, Jiri Bures, Dalibor Bartonek, Otakar Svabensky, Michal Vojkuvka, Brno University of Technology, Czech Republic	943
120. KNOWLEDGE DATABASE IN GEOINFORMATION MANAGEMENT OF THE TERRITORY DEVELOPMENT, Prof. DSc. Eugene P. Istomin, Assoc. Prof. DSc. Valery M. Abramov, Assoc. Prof. DSc. Alexander G. Sokolov, Prof. DSc. V.G. Burlov, PhD L.S. Slesareva, Russian State Hydrometeorological University Arctic and Subarctic Institute, Russia	951
121. LAND USE-LAND COVER CHANGE, AND ITS EFFECTS ON NATURE CONSERVATION: A GEOINFORMATICS BASED APPROACH IN OGUTA, SOUTH-EASTERN NIGERIA, Chukwudi Nwaogu, Joshua Onyedikachi Okeke, Prof. Henry Ugochukwu Okeke, Modupeola A. Olawoyin, Asso. Prof. Vilem Pechanec, Palacky Unversity Olomouc-Faculty of Science, Czech Republic	959
122. LEGISLATIVE ASPECTS OF SPATIAL DATA PUBLICATION, Alena Vondrakova, Rostislav Netek, Tomas Pohanka, Tomas Pour, Michal Malacka, Palacky University in Olomouc, Czech Republic	967
123. MAPPING THE ECONOMIC DATA - CASE STUDIES AND BEST PRACTICES, Paszto, V., Burian, J., Panek, J., Macku, K., Palacky University in Olomouc, Czech Republic.....	975
124. METEOINFORMATICS AND METEOINFORMATION SYSTEMS, Andrei Vorobev, Gulnara Vorobeva, Ufa State Aviation Technical University, Russia	983
125. METHODS ANALYSIS FOR THE PROCESSING OF POINT CLOUDS FROM TERRESTRIAL LASER SCANNING IN ORDER TO REDUCE THE AMOUNT OF DATA, MSc Wojciech Matwij, AGH University of Science and Technology, Poland	991
126. MODIFICATION OF OPTOELECTRONIC INTELLECTUAL SYSTEMS FOR ABSOLUTE MEASUREMENTS IN MONITORING OF EARTH SEISMIC DYNAMICS, Vadim Zhmud, Vladimir Semibalamut, Lubomir Dimitrov, Aleksey Taichenachev, Novosibirsk State Technical University, Russia	999
127. NEW APPROACH TO THE ASSESSMENT OF GEOHAZARD IN THE MANAGEMENT OF THE TERRITORIES, Prof. DSc. Eugene P. Istomin, Assoc. Prof. DSc. Valery M. Abramov, Assoc. Prof. DSc. Alexander G. Sokolov, Prof. DSc. V.G. Burlov, PhD Anna A. Fokicheva, Russian State Hydrometeorological University Arctic and Subarctic Institute, Russia.....	1005

- 128. OPTIMIZATION MODEL OF HEAT SUPPLY CONSUMERS CONNECTION SCHEDULE TO THE HEAT SUPPLY SYSTEM**, Prof. Dr. Vladimir Nemtinov, Graduate student Sergey Terekhov, Assoc. Prof. Dr. Yulia Nemtinova, Assoc. Prof. Dr. Andrey Borisenko, Prof. Dr. Sergey Egorov, Tambov State Technical University, Russia 1013
- 129. OPTIMIZATION OF POINT CLOUD DATA FOR SURFACE REPRESENTATION OF OBJECTS WITH COMPLICATED STRUCTURE**, Ing. Jana FAIXOVA CHALACHANOVA, Ph.D., Ing. Renata DURACIOVA, Ph.D., Bc. Katarina TAPAJNOVA, Slovak University of Technology Bratislava Faculty of Civil Engineering, Slovakia 1021
- 130. ORGANIZATION OF THE ACCESS DATABASE FOR THE KADIICA MINERAL DEPOSIT, REPUBLIC OF MACEDONIA**, Goran Tasev and Dalibor Serafimovski, University Goce Delcev, FYR of Macedonia 1029
- 131. PROGNOSTICATION THE LOCATION OF ARCHAEOLOGICAL SITES BASED ON GIS ANALYSIS OF THE UKOK PLATEAU (ALTAI MOUNTAINS)**, A. Glebova, I. Sergeev, N. Bykov, Saint Petersburg State University, Russia 1037
- 132. REFLECTIVE 2D VISUALIZATION OF 3D OBJECTS USING CARTOGRAPHIC PROJECTION**, Mgr. Tomas Kralik, Mgr. Vit Paszto, Ph.D., Ing. Detlef Olschewski, doc. Mgr. Pavel Tucek, Ph.D., Palacky University in Olomouc, Czech Republic 1045
- 133. SCALABLE DISTRIBUTED STORAGE FOR IMAGERY DATA COMPUTING IN GEOINFORMATICS**, Kokoulin Andrey, Yuzhakov Aleksandr, Kiryanov Dmitriy, Perm national scientific research university, Russia 1053
- 134. STANDARDIZATION OF SURVEY FLATS AND OFFICE SPACE BY LASER SCANNING**, Ing. Jana Zaoralova, Ph.D, Ing. Milan Kocab, MBA, VUGTK, v.v.i., Czech Republic 1061
- 135. THE INCREASE OF THE ACCURACY OF THE LASER-BASED MEASUREMENT OF ULTRA-LOW TIDAL DEFORMATION OF ROCKS**, Vadim Zhmud, Vladimir Semibalamut, Lubomir Dimitrov, Yury Fomin, Novosibirsk State Technical University, Russia 1069
- 136. THE INTEGRATION OF SENSOR DATA INTO A GIS ENVIRONMENT USING THE EXAMPLE OF SPECTRAL REFLECTANCE SENSOR**, MSc. Tomas Pohanka, assoc. prof. Vilem Pechanec, Ph.D., MSc. Alexander Mraz, Ph.D., MSc. Helena Kilianova, Ph.D., MSc. Antonin Benc, Palacky University in Olomouc, Czech Republic 1077
- 137. THE MAIN PRINCIPLES OF SUNLIGHT ANALYSIS BASED ON POINT CLOUD DATA**, Ing. Lubomira GERHATOVA, Ph.D., Ing. Milan MUNKO, Ing. Branislav HROSSO, Ing. Renata, DURACIOVA, Ph.D., Ing. Jana, FAIXOVA

CHALACHANOVA, PhD., Slovak University of Technology Bratislava Faculty of Civil Engineering, Slovakia.....1085

138. THE USAGE OF THE POWER BALANCE SPATIAL DISTRIBUTION MODEL TO DEVELOP THE DECISION SUPPORT METHODS IN BUILDING SITE SELECTION AND ENERGY-SELECTING SCHEME, Demidova S.A., PG student, Kosyakov S.V., Doctor of Engineering, professor, Ivanovo State Power University, Russia.....1093

139. THE USE TOPOGRAPHIC DATABASE FOR NON STANDART PROJECT, Malgorzata Leszczynska, Serval Miller, University of Warmia and Mazury, Poland.....1099

140. USABILITY EVALUATION OF CONVOLUTIONAL NEURAL NETWORKS IN ROADS EXTRACTION FROM AERIAL IMAGES, Ing. Milan Munko, Ing. Renata Duraciova, PhD., Slovak University of Technology in Bratislava - Faculty of Civil Engineering, Slovakia1105

141. USING GIS/GPS FOR MONITORING THE CLOSED MINE AREAS, DINESCU, S., KISS, R., University of Petrosani, Romania.....1113

142. USING GIS/GPS TOOLS FOR INSPECTING OPEN PIT LIGNITE MINES, KISS, R., DINESCU, S., University of Petrosani, Romania.....1119

143. VIDEO – BASED HUMAN BEHAVIOR INTERPRETATION AND MODELLING WITH THE STATBOX CONCEPT, Kaspars Chabs, Marita Cekule, Latvijas Universitate, Latvia.....1127

144. WEB-GIS APPLICATION FOR ANALYSES OF THE SENSORS DATA ON THE WEB, MSc. Tomas Pohanka, assoc. prof. Vilem Pechanec, Ph.D., MSc. Marek Balun, Palacky University in Olomouc, Czech Republic.....1135

145. A CONCEPT OF WEBGIS POLLEN ALLERGY MAPPING, PhD Michal Lupa MSc Marta Samulowska PhD Szymon Chmielewski, Dr. Dorota Myszkowska, Prof. Ewa Czarnobilska, AGH University of Science and Technology, Poland.....1141