

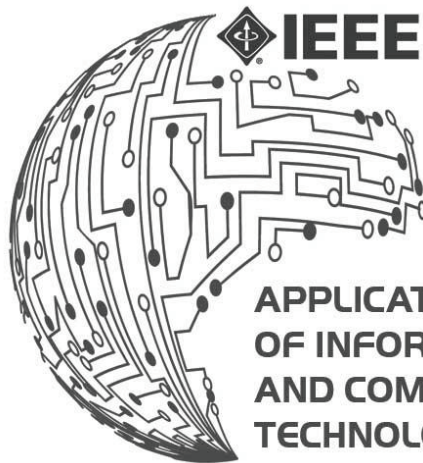
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**APPLICATION  
OF INFORMATION  
AND COMMUNICATION  
TECHNOLOGIES - AICT2016**

**CONFERENCE  
PROCEEDINGS**

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## APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES - AICT2016

### CONFERENCE PROCEEDINGS

**2016 10th International Conference on Application of Information and Communication Technologies (AICT)**

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## TABLE OF CONTENTS

### SESSION 1 – BIG DATA MANAGEMENT AND APPLICATION

<b>THE CASE STUDY APPROACH TO LEARNING TEXT MINING</b>	
<i>Yerzhan Baiburin, Zheniskul Zhantassova, Aliya Nugumanova, Aigul Syzdykpayeva, Igor Bessmertry</i> .....	3
<b>LARGE SCALE SYSTEM MANAGEMENT BASED ON MARKOV DECISION PROCESS AND BIG DATA CONCEPT</b>	
<i>Sagit Valeev, Natalya Kondratyeva</i> .....	6
<b>APPROACHES FOR INTERACTIVE BROWSING OF LARGE IMAGE DATASETS</b>	
<i>Gerald Schaefer</i> .....	10
<b>INVESTIGATION OF ALGORITHMS AND MODELS OF OPTIMIZATION OF CLOUD APPLICATIONS AND SERVICES IN VIRTUAL INFRASTRUCTURE OF DATA CENTER</b>	
<i>Irina Bolodurina, Denis Parfenov</i> .....	14
<b>BIG DATA INTEGRATION ARCHITECTURAL CONCEPTS FOR OIL AND GAS INDUSTRY</b>	
<i>Rasim M. Aliguliyev, Ramiz M. Aliguliyev, Makrufa S. Hajirahimova</i> .....	20
<b>PARALLELIZING SHORTEST PATH ALGORITHM FOR TIME DEPENDENT GRAPHS WITH FLOW SPEED MODEL</b>	
<i>Mehmet Akif Ersoy, Can Ozturan</i> .....	25
<b>STATISTICAL DATA ANALYSIS FOR NETWORK INFRASTRUCTURE MONITORING TO RECOGNIZE ABERRANT BEHAVIOR OF SYSTEM LOCAL SEGMENTS</b>	
<i>Mikhail Sukhoparov, Alexander Davydov, Ilya Lebedev, Nurzhan Bazhayev</i> .....	32
<b>TEXT BIG DATA ANALYTICS: EXPLORING API OPPORTUNITY</b>	
<i>Olga Kolesnichenko, Yuriy Kolesnichenko, Gennady Smorodin, Dariya Yakovleva, Lev Mazelis, Oleg Zhurenkov</i> .....	37
<b>DETERMINATION OF LOSS OF INFORMATION DURING DATA ANONYMIZATION PROCEDURE</b>	
<i>Alexey Pervushin, Viktoria Ermachkova, Anton Spivak</i> .....	42
<b>BIG DATA: POTENTIAL AND INDICATORS</b>	
<i>Makrufa S. Hajirahimova, Aybeniz S. Aliyeva, Goychak F. Mahmudlu</i> .....	47
<b>ARCHITECTURE AND SECURITY TOOLS IN DISTRIBUTED INFORMATION SYSTEMS WITH BIG DATA</b>	
<i>Rinat Pavlikov, Roza Beisembekova</i> .....	52
<b>DISTRIBUTED INFORMATION AND CONTROL SYSTEM FOR EMERGENCIES IN CRITICAL INFRASTRUCTURES</b>	
<i>Sagit Valeev, Natalya Kondratyeva</i> .....	58
<b>CHARACTER-BASED FEATURE EXTRACTION WITH LSTM NETWORKS FOR POS-TAGGING TASK</b>	
<i>Zhandos Yessenbayev, Aibek Makazhanov</i> .....	62
<b>SMART LIVING HOME FOR ELDERLY PEOPLE USING WIRELESS SENSOR NETWORKS ON ANDROID APPLICATION</b>	
<i>Kashif Nisar, Abzetedin Adamov</i> .....	67
<b>FATIGUE TEST OPTIMIZATION FOR COMPLEX TECHNICAL SYSTEM ON THE BASIS OF LIFECYCLE MODELING AND BIG DATA CONCEPT</b>	
<i>Natalya Kondratyeva, Sagit Valeev</i> .....	75
<b>BATCH CLUSTERING ALGORITHM FOR BIG DATA SETS</b>	
<i>Rasim Aliguliyev, Ramiz Aliguliyev, Rafael Karimov, Adil Bagirov</i> .....	79

### SESSION 2 – DATA MINING AND DATA ENGINEERING

<b>EVALUATION OF MACHINE TRANSLATION OUTPUT IN CONTEXT OF INFLECTIONAL LANGUAGES</b>	
<i>Daša Munková, Jozef Kapusta, Michal Munk, Jaroslav Reichel</i> .....	85
<b>MATH MODELING OF PASSENGER TRAFFIC IN THE MONORAIL TRANSPORT SYSTEM</b>	
<i>Antonova V.M., Kuznetsov N.A., Volkov D.O., Starostenko A. M.</i> .....	90
<b>BEHAVIOR ANALYSIS AND EVENT DETECTION WITH STATISTICS OF NEWS RELEASE ON INSURGENT WEBSITE</b>	
<i>Min Tang, Duoyong Sun</i> .....	94
<b>ROAD CONDITION ANALYSIS USING 3-AXIS ACCELEROMETER AND GPS SENSORS</b>	
<i>B. Y. Amirgaliyev, K. K. Kuvatov, Z. Y. Baibatyr</i> .....	99

<b>LINK GRAMMAR PARSER FOR TURKIC LANGUAGES AND ALGORITHMS FOR ESTIMATION THE RELEVANCE OF DOCUMENTS</b>	
<i>Batura Tatiana Victorovna, Murzin Feodor Alexandrovich, Bakiyeva Aigerim Muratovna, Tazhibayeva Saule Zhaksylykbayevna, Yerimbetova Aigerim Sembekovna, Sagnayeva Saule Kairolliyevna</i>	104
<b>SPEECH RECOGNITION USING SUPPORT VECTOR MACHINES</b>	
<i>Kamil Aida-zade, Anar Xocayev, Samir Rustamov</i>	108
<b>ON A MATHEMATICAL MODEL OF THE GENERALIZED SEQUENTIAL PARTIALLY COVERING PROBLEM</b>	
<i>Fidan Nuriyeva</i>	112
<b>APPLYING OF ONTOLOGICAL ENGINEERING TO REPRESENT KNOWLEDGE AND TRAINING SESSIONS</b>	
<i>Bulat Kubekov, Vitaliy Naumenko, Anar Utegenova</i>	115
<b>VISUALIZATION OF PARALLEL MODELING OF DYNAMICAL PROCESSES ON STOCHASTIC KRONECKER GRAPHS</b>	
<i>Anastasia A. Lantseva, Claudia K. Bochenina, Sergey V. Ivanov</i>	119
<b>AN OBJECT-ORIENTED MODEL OF CASE-BASED REASONING SYSTEM USING SITUATIONS TREE</b>	
<i>Ruslan K. Akhmadulin, Igor N. Gluhih, Ivan Y. Karyakin</i>	124
<b>COMPARATIVE ANALYSIS OF FEATURE SELECTION ALGORITHMS IN CONSTRUCTION OF FUZZY CLASSIFIERS</b>	
<i>I.V. Gorbulnov, S.R. Subhankulova, I. A. Hodashinsky, A. E. Yankovskaya</i>	128
<b>ORDERED MULTIDIMENSIONAL MODEL CONSTRUCTION OF RELATIONAL SOURCE FOR INTEGRAL OLAP-MODELING</b>	
<i>Anna Korobko, Ludmila Nozhenkova</i>	131
<b>INFORMATION'S SEMANTIC SEARCH, CLASSIFICATION, STRUCTURING AND INTEGRATION OBJECTIVES IN THE KNOWLEDGE MANAGEMENT CONTEXT PROBLEMS</b>	
<i>Yury Kravchenko, Elmar Kuliev, Ilona Kursitya</i>	136
<b>MULTI-OBJECTIVE PARTICLE SWARM OPTIMIZATION FOR ONTOLOGY ALIGNMENT</b>	
<i>Semenova A.V, Kureychik V.M.</i>	141
<b>EVALUATION OF FUZZY PETRI NETS WITH THE TOOL TRANSPLACESIM</b>	
<i>Michal Kuchárik, Zoltán Balogh</i>	148
<b>APPLICATION OF DATA MINING TECHNOLOGY TO OPTIMIZE THE CITY TRANSPORT NETWORK</b>	
<i>Irina Makarova, Rifat Khabibullin, Vadim Mavrin, Danila Tikhonov, Denis Davletshin, Ksenia Shubenkova</i>	153
<b>A STATISTICAL APPROACH TO MINING THE DM STRATEGY FOR OWA OPERATORS</b>	
<i>Resmiye Nasiboglu, Baris Tekin Tezel</i>	158
<b>THE MOST COMMON PROBLEMS OF DATA MINING</b>	
<i>Sabina Fomenko, Sayar Abdullayev</i>	162
<b>SYNTACTIC TEXT ANALYSIS WITHOUT A DICTIONARY</b>	
<i>Bessmertny I. A., Platonov A.V., Poleschuk E.A., Ma Pengyu</i>	165
<b>EVENTS ANALYSIS BASED ON INTERNET INFORMATION RETRIEVAL AND PROCESS MINING TOOLS</b>	
<i>Irina Shalyaeva, Lyudmila Lyadova, Viacheslav Lanin</i>	168
<b>APPROACH TO DEFINING THE MAXIMUM AMOUNT OF FLOW IN DYNAMIC FUZZY NETWORK WITH THE GIVEN VITALITY DEGREE</b>	
<i>Bozhenyuk Alexander, Gerasimenko Evgeniya, Igor Rozenberg</i>	173
<b>VLSI ELEMENTS PLACEMENT BASED ON SIMULATION OF BATS BEHAVIOR IN NATURE</b>	
<i>Elmar Kuliev, Andrey Lezhebokov, Yuri Kravchenko</i>	178
<b>FUZZY METHOD OF REVEALING IMPLICIT CAUSALITY WITHIN A CONTROL SYSTEM</b>	
<i>Dmitry M. Nazarov, Svetlana V. Begicheva, Dmitry A. Azarov</i>	182
<b>OPINION MINING AND SENTIMENT ANALYSIS FOR CONTEXTUAL ONLINE-ADVERTISEMENT</b>	
<i>Abzeldin Adamov, Esref Adali</i>	187
<b>DATABASE SCHEMA METHOD FOR AUTOMATIC SEMANTIC ERRORS RESOLVING DURING INFORMATION SYSTEMS INTEGRATION</b>	
<i>Andrey V. Grigoryev, Alexander A. Kropotin, Alexander G. Ivashko</i>	190
<b>IDENTIFICATION OF THE PARALLEL DOCUMENTS FROM MULTILINGUAL NEWS WEBSITES</b>	
<i>Bagdat Myrzakhmetov, Aitolkyn Sultangazina, Aibek Makazhanov</i>	197
<b>MAXIMUM RELEVANCE AND CLASS SEPARABILITY FOR HYPERSPECTRAL FEATURE SELECTION AND CLASSIFICATION</b>	
<i>Saeed Jahanshahi</i>	202
<b>A SENTENCE SELECTION MODEL AND HLO ALGORITHM FOR EXTRACTIVE TEXT SUMMARIZATION</b>	
<i>Rasim Alguliyev, Ramiz Aliguliyev, Nijat Isazade</i>	206

<b>AUTHORSHIP IDENTIFICATION OF THE AZERBAIJANI TEXTS USING N-GRAMS</b> <i>Aida-zade K.R., Talibov S.Q.</i>	210
<b>SENTIMENT ANALYSIS FOR BANK SERVICE QUALITY: A RULE-BASED CLASSIFIER</b> <i>Yuliya Bidulya, Elena Brunova</i>	213
<b>OBJECT DETECTION AND SEGMENTATION USING DATA FROM TIME-OF-FLIGHT CAMERAS</b> <i>Timur Luguev, Aida Razakova</i>	217
<b>HEURISTIC APPROACH TO MODEL OF CORPORATE KNOWLEDGE CONSTRUCTION IN INFORMATION AND ANALYTICAL SYSTEMS</b> <i>Victoria Bova, Vladimir Kureichik, Daria Zaruba</i>	221

### SESSION 3. CYBER SECURITY ISSUES

<b>EXTENSION OF ACCESS CONTROL POLICY IN SECURE ROLEBASED WORKFLOW MODEL</b> <i>Ivan Tarkhanov</i>	229
<b>MOBILE ID – CRUCIAL ELEMENT OF M-GOVERNMENT IN THE REPUBLIC OF AZERBAIJAN</b> <i>Jana Krimpe</i>	233
<b>CARRIER-GRADE NAT - IS IT REALLY SECURE FOR CUSTOMERS? A TEST ON A TURKISH SERVICE PROVIDER</b> <i>Kevser Ovaz Akpınar, Mustafa Akpınar, Ibrahim Ozcelik, Nejat Yumusak</i>	240
<b>NEW APPROACH TO SOFTWARE CODE DIVERSIFICATION IN INTERPRETED LANGUAGES BASED ON THE MOVING TARGET TECHNOLOGY</b> <i>Mikhail Styugin, Vyacheslav Zolotarev, Anton Prokhorov, Roman Gorbil</i>	244
<b>PRIVACY PROTECTION IN NIGERIAN E-GOVERNMENT SYSTEMS</b> <i>David Alade, Sergey Butakov, Pavol Zavorsky</i>	249
<b>THE WAYS ASSESSMENT OF INFORMATION SECURITY IN ORGANIZATIONS</b> <i>Ganiev Abdulkhalil Abdujalilovich, Yusupov Sabirjan Yusupdjanovich, Gulomov Sherzod Rajaboevich</i>	255
<b>A NEW APPROACH TO DETECTING AND PREVENTING THE WORM HOLE ATTACKS FOR SECURE ROUTING IN MOBILE AD-HOC NETWORKS BASED ON THE SPR PROTOCOL</b> <i>Seyed Ali Sharifi, Seyed Morteza Babamir</i>	258
<b>A CRYPTOGRAPHY APPROACH ON SECURITY LAYER OF WEB SERVICE</b> <i>Arezo Mirtalebi, Seyed Morteza Babamir</i>	263
<b>ANALYZING VULNERABILITY DATABASES</b> <i>Rashad Aliyev, Lourdes Peñalver</i>	268
<b>A LIGHT WEIGHT DYNAMIC ATTRIBUTE BASED ACCESS CONTROL MODULE INTEGRATED WITH BUSINESS RULES</b> <i>Vali Tawosi</i>	273
<b>RESULTS OF IMPLEMENTING WPA2-ENTERPRISE IN EDUCATIONAL INSTITUTION</b> <i>Konstantin Yanson</i>	278

### SESSION 4. LATEST TRENDS IN ICT APPLICATION

<b>BEACON AUTHPATH</b> <i>Emin Huseynov, Jean-Marc Seigneur</i>	285
<b>IMPROVING COLLABORATIVE RECOMMENDER SYSTEMS VIA EMOTIONAL FEATURES</b> <i>Soghra Lazemi, Hossein Ebrahimpour-komleh</i>	290
<b>INFORMATION INTERACTION OF DECENTRALIZED GROUP CONTROL OF UNMANNED VEHICLES</b> <i>S V Tikhonov, R T Sirazetdinov, N R Surkin</i>	295
<b>RESEARCH ON THE STRUCTURAL CHARACTERISTIC OF GLOBAL TERRORIST ORGANIZATION COOPERATION NETWORK</b> <i>Zihan Lin, Duoyong Sun, Min Tang</i>	299
<b>MULTILANGUAGE NATURAL USER INTERFACE TO DATABASE</b> <i>Ruslan Posevkin, Igor Bessmertny</i>	304



<b>USE OF INTEGRATED TECHNOLOGIES FOR FIRE MONITORING AND FIRST ALERT</b> <i>A. D'Ambrogio, P. Gaudio, M. Gelfusa, M. Luglio, A. Malizia, C. Roseti, F. Zampognaro, A. Giglio, A. Pieroni, S. Marsella</i>	307
<b>INVESTIGATION OF THE SPATIAL STRUCTURE OF THE ANALOGUE [LEU7] OF OCTARPHIN MOLECULE BY COMPUTER MODELING</b> <i>L.N. Agayeva, N.A. Akhmedov, L.I. Ismailova, R.M. Abbasli</i>	312
<b>AUTOMATED RECOGNITION SYSTEM OF STATISTIC GESTURES VIA KINECT SENSOR</b> <i>Saule Kudubayeva, Dmitriy Ryumin, Marat Kalghanov, Almatova Assem</i>	316
<b>THE TECHNIQUE OF CREATING DISTRIBUTED COMPUTING SYSTEMS BASED ON SERVICE-ORIENTED ARCHITECTURE</b> <i>Lyashov M.V., Bereza A.N., Babaev A.M., Alekseenko J.V., Nazvantsev D.S.</i>	320
<b>USING MODEL-BASED METHODS FOR EMBEDDED SOFTWARE DEVELOPMENT</b> <i>S.Jalilian, T.Boroumandnejad, Kazimov Tofig H.</i>	325
<b>COMPUTER MODELING OF SPATIAL STRUCTURE OF DERMOPHIN</b> <i>G.A.Akverdieva</i>	328
<b>INTERFACE FOR INTERACTION OF GIS TECHNOLOGY FOR ELECTRONIC MASTER PLAN MANAGEMENT AND THIRD-PARTY SOFTWARE SYSTEMS</b> <i>Pavel V. Senchenko, Yury B. Gritsenko, Oleg I. Zhukovsky, Yury P. Ekhlakov</i>	333
<b>EXISTENCE OF REPETITIONS OF DIGITS IN THE CONSTRUCTION OF PERIODIC SEQUENCES RELATED TO <math>3X+1</math> PROBLEM</b> <i>Yagub N. Aliyev</i>	337
<b>SELECTION OF TIME SERIES FORECASTING MODEL, USING A COMBINATION OF LINGUISTIC AND NUMERICAL CRITERIA</b> <i>T. Afanasieva, A. Sapunkov</i>	341
<b>A FC2TA MODEL FOR CONGESTION MANAGEMENT IN CONFIDENCE AODV PROTOCOL</b> <i>Rahim Rashidi, Farugh Katani, Saeid Usefpour, Farooq Ashkooti</i>	346
<b>SIMULATION OF IDENTIFICATION PROCESS OF PARAMETERS OF MOVEMENT OF THE WAGON ON MONORAIL TRANSPORT</b> <i>Moroz N., Starostenko A., Gorbachev R.A., Kuznetsov N.A.</i>	351
<b>USING OF MULTI-AGENT SYSTEM TO MODEL A PROCESS OF MAINTENANCE SERVICE AND REPAIR OF EQUIPMENT OF A SERVICE COMPANY</b> <i>Vladislav V. Panteleev, Alexey V. Kizim, Valery A. Kamaev, Anna V. Matokhina</i>	355
<b>THE SUBJECT-ORIENTED NOTATION FOR END-USER DATA MODELLING</b> <i>Sergey Kucherov, Yuri Rogozov, Alexander Svirido</i>	358
<b>APPLICATION OF NEURAL NETWORK FOR DIGITAL RECURSIVE FILTER DESIGN</b> <i>Naila Allakhverdiyeva</i>	363
<b>COMPUTER MODELLING OF SPATIAL AND ELECTRONIC STRUCTURES OF THE COMPLEX OF PEG4 WITH KCL</b> <i>I.N. Alieva, Z.I. Hajiyev, S.D. Demukhamedova, N.M. Gojayev</i>	367
<b>PERFORMANCE ANALYSIS OF E-ARCHIVE INVOICE PROCESSING ON DIFFERENT EMBEDDED PLATFORMS</b> <i>Salih Bayar</i>	371
<b>THE SYNTHESIS OF RELIABLE SOLUTIONS OF THE LOGISTICS PROBLEMS USING GEOGRAPHIC INFORMATION SYSTEMS</b> <i>Stanislav Belyakov, Marina Belyakova, Marina Savelyeva, Igor Rozenberg</i>	375
<b>RECOMMENDER SYSTEM PROVIDING RECOMMENDATIONS FOR UNIDENTIFIED USERS OF A COMMERCIAL WEBSITE</b> <i>Igor N. Gluhih, Ivan Y. Karyakin, Lyudmila V. Sizova</i>	380
<b>INTELLIGENT CONTROL SYSTEM FOR THE RAIL TRANSPORTATIONS</b> <i>F.F.Pashchenko, V. A. Trapeznikov, N.A.Kuznetsov, I.K.Minashina, N.G.Ryabykh, E.M.Zakharova</i>	383
<b>BIOINSPIRED APPROACH FOR 3D PACKAGING PROBLEM</b> <i>Vladimir Kureichik, Alexander Glushchenko, Vladimir Kureichik Jr., Anton Orlov</i>	387
<b>ANALYSIS OF BIOCLIMATIC STRUCTURE OF ANIMALS' HABITATS ON THE BASE OF THE HEAT BALANCE SIMULATION</b> <i>Vladimir Mikhailov, Konstantin Klovov, Anna Pestereva</i>	390
<b>USAGE OF FUZZY EXTRACTORS IN A HANDWRITTEN-SIGNATURE BASED TECHNOLOGY OF PROTECTING A HYBRID DOCUMENT MANAGEMENT SYSTEM</b> <i>Pavel Lozhnikov, Alexey Sulavko, Danil Volkov</i>	395

<b>A MEMORY EFFICIENT DISTRIBUTED FUZZY JOINT POINTS CLUSTERING ALGORITHM</b> <i>Can Atilgan, Efendi Nasibov</i>	401
<b>SESSION 5. COMMUNICATION, NETWORK AND HARDWARE</b>	
<b>OPTIMUM POWER ALLOCATION FOR NON-ORTHOGONAL MULTIPLE ACCESS (NOMA)</b> <i>Talgat Manglayev, Refik Caglar Kizilirmak, Yau Hee Kho</i>	409
<b>A GENERAL EXTENSIBLE FRAMEWORK FOR MOBILE LOCATION-BASED INFORMATION SYSTEMS</b> <i>Mona A. E. Rizvi, Assan Toleuov, Dzhamshed Khaitov, Sagynysh Baitursinov</i>	413
<b>ANOMALY DETECTION IN NETWORK TRAFFIC USING EXTREME LEARNING MACHINE</b> <i>Yadigar Imamverdiyev, Lyudmila Sukhostat</i>	418
<b>THE TECHNOLOGY FOR THE AUTOMATIC FORMATION OF THE PERSONAL DIGITAL VOICE PATTERN</b> <i>R.R. Mussabayev, Ye. N. Amirgaliyev, A.T.Tairova, T.R.Mussabayev, K.Ch. Koibagarov</i>	422
<b>COMPARISON OF QOS ARCHITECTURES FOR VOIP TRAFFICS IN IPV4 AND IPV6</b> <i>Hayder AL-Fayyadh, Murat Koyuncu</i>	427
<b>VISUAL QUALITY ESTIMATION TECHNIQUE FOR SERVICES IN CLOUD ENVIRONMENTS</b> <i>Aleksandr Skatkov, Elena Mashchenko, Victoria Shevchenko, Dmitry Voronin</i>	432
<b>ANALYSIS OF THE STATUS OF MARINE AUTOMATION SYSTEMS PROBLEMS ON THE EXAMPLE OF MODERN TECHNOLOGICAL NETWORKS</b> <i>Sergei Sokolov, Sergei Chernyi, Aleksandr Bordug, Ivan Titov</i>	436
<b>DIAGRAMMATIC MODELS PROCESSING IN DESIGNING THE COMPLEX AUTOMATED SYSTEMS</b> <i>A.N. Afanasyev, N.N. Voit, R.F. Gainullin</i>	441
<b>IMPROVING EMERGENCY MANAGEMENT DSS THROUGH THE CAP PROTOCOL</b> <i>Stefano Marsella, Marcello Marzoli</i>	445
<b>ALGORITHMS IN PORTABLE DIGITAL DEVICE UHDTV PANORAMIC IMAGE FORMATION</b> <i>I.S. Konstantinov, S.A. Lazarev, K.A. Rubtsov, Y.N. Maslakov</i>	449
<b>IMPLEMENTING CYCLING TRAINING APPLICATION FOR MOBILE DEVICES</b> <i>Andrey Bogdanchikov, Rassim Suliyev, Bekzhan Bolatov</i>	452
<b>THE USAGE OF THE MOBILE AD-HOC NETWORKS IN THE CONSTRUCTION INDUSTRY</b> <i>Igor Konstantinov, Kostiantyn Polshchikov, Sergej Lazarev, Olha Polshchikova</i>	455
<b>THE EFFECT OF THE DEVICE MISMATCH ON PARAMETERS OF GAN MMIC PHASE SHIFTERS</b> <i>Aleksandr Timoshenko, Egor Belousov, Ksenia Molenkamp, Alexander Bakhtin</i>	458
<b>REAL TIME FACE DETECTION/MONITOR USING RASPBERRY PI AND MATLAB</b> <i>Ali Akbar Shah, Syed Zulfiqar Ali Zaidi, Dr. Bhawani Shankar Chowdhry, Dr. Jawaid Daudpoto</i>	462
<b>THE MODEL OF MANAGEMENT ACCESS TO THE RESOURCES OF THE CLOSED DISCRETIONARY INFORMATION COMPUTATION ENVIRONMENT IN THE FORM OF CORPORATE PORTAL NETWORK</b> <i>Igor S. Konstantinov, Sergej A. Lazarev, Oleg V. Mihalev, Vladimir E. Kiselev, Alexander V. Demidov</i>	466
<b>NEUROEVOLUTION: PROBLEMS, ALGORITHMS, AND EXPERIMENTS</b> <i>Sergey Rodzin, Olga Rodzina, Lada Rodzina</i>	469
<b>A HEURISTIC ALGORITHM FOR THE BAND COLLOCATION PROBLEM</b> <i>Arif Gursoy, Mehmet Kurt, Urfat Nuriyev, Hakan Kutucu</i>	473
<b>FIGURATIVELY-SEMANTIC SUPPORT IN PRECEDENT-ORIENTED SOLVING THE PROJECT TASKS</b> <i>Petr Sosnin</i>	477
<b>CPTRUSTWORTHINESS: NEW ROBUST MODEL FOR TRUST EVALUATION IN CLOUD COMPUTING</b> <i>Fargana Abdullayeva</i>	482
<b>VIRTUAL CLOUD NETWORK LABORATORY BASED ON IAAS WITH AUTOMATIZED CREATION OF NETWORK TOPOLOGY ON DEMAND</b> <i>Yu.A. Ushakov, P.N. Polezhaev, L.V. Legashev, A.E. Shukhman, I.P. Bolodurina</i>	488
<b>INFORMATIONAL AND CONTROL SYSTEM CONFIGURATION GENERATION PROBLEM WITH LOAD-BALANCING OPTIMIZATION</b> <i>E.V. Melnik, A.B. Klimenko</i>	492
<b>A BETTER HEURISTIC FOR THE MINIMUM CONNECTED DOMINATING SET IN AD HOC NETWORKS</b> <i>Onur Ugurlu, Deniz Tanir, Elnur Nuri</i>	497

<b>AUTOMATION OF INTERACTION OF CUSTOMERS AND SUPPLIERS IN CONTROL SYSTEM OF PROVIDING ELECTRONIC SERVICES TO THE POPULATION WITHIN NETWORK OF PORTALS</b> <i>Volkov V.N., Stichuk A.A., Lunev R.A., Demidov A.V.</i> .....	501
<b>THE CROSSTALK COMPENSATOR FOR FIBER-OPTIC DATA TRANSMISSION SYSTEMS WITH DIVISION MULTIPLEXING</b> <i>Dmitry Kiesewetter, Victor Malyugin</i> .....	506
<b>A DISTRIBUTED PARTICLE FILTER FOR ACUSTIC TARGET TRACKING IN WIRELESS SENSOR NETWORKS</b> <i>Farooq Ashkooti, Rahim Rashidy</i> .....	510
<b>PERFORMANCE IMPROVEMENT OF 40 GB/S WDM SYSTEMS BY OPTIMIZATION OF DISPERSION MAP</b> <i>Muhammad Yousaf Hamza, Imran Hayee</i> .....	516
<b>EU-OFDM BASED MULTIPLE ACCESS FOR VISIBLE LIGHT COMMUNICATION NETWORKS</b> <i>Gerard Djengomemgoto, Omer Narmanlioglu, Murat Uysal, Refik Caglar Kizilirmak</i> .....	521
<b>ANALYSIS OF APPLICABILITY OF OPEN SINGLE SIGN-ON PROTOCOLS IN DISTRIBUTED INFORMATION-COMPUTING ENVIRONMENT</b> <i>Lazarev S.A., Demidov A.V., Volkov V.N., Stychuk A.A., Polovinkin D.A.</i> .....	525
<b>MULTI-OBJECTIVE OPTIMIZATION ROUTE SELECTION AND RESOURCE ALLOCATION IN WIRELESS MULTI-HOP COOPERATIVE COGNITIVE RADIO SENSOR NETWORKS BASED ON OFDMA</b> <i>Fereshteh Atri Niasar, Ali Shahzadi</i> .....	530
<b>PERFORMANCE OF OFDM-BASED ADAPTIVE VISIBLE LIGHT COMMUNICATIONS</b> <i>Omer Narmanlioglu, Murat Uysal, Refik Caglar Kizilirmak</i> .....	535
<b>EFFECTIVE MULTITHRESHOLD DECODING ALGORITHMS FOR WIRELESS COMMUNICATION CHANNELS</b> <i>Zolotarev V., Ovechkin G., Issainova A., Satybaldina D., Tashatov N., L.N. Gumilyov</i> .....	539
<b>PERFORMANCE OF COMMUNICATION PROTOCOLS UNDER TRANSFER A GROUP OF ACKNOWLEDGMENT FRAMES</b> <i>Kushnazarov Farruh I, Yakovlev Valentin V.</i> .....	544
<b>STUDY OF ROBUST STABILITY AND QUALITY OF THE TWO CHANNEL CONTROL SYSTEM</b> <i>Aizhan Erulanova, Gennadii Shadrin, Natalia Arinova, D. Serikbaev</i> .....	549
<b>DEVELOPMENT A METHOD FOR ROUTING IN HETEROGENEOUS TELECOMMUNICATION SYSTEMS UNDER UNCERTAINTY USING FUZZY LOGIC</b> <i>Q.T. Tran, T.H.T Vo, V.N. Dmitriev, A.A. Sorokin</i> .....	553
<b>EVALUATION OF THE AVAILABLE WIRELESS REMOTE DEVICES SUBJECT TO THE INFORMATION IMPACT</b> <i>Nurzhan Bazhayev, Ilya Lebedev, Irina Krivtsova, Mikhail Sukhoparov, Kseniya Salakhutdinova, Alexander Davydov, Yuriy Shaparenko</i> .....	556
<b>MONITORING OF QUALITATIVE CHANGES OF NETWORK TRAFFIC STATES BASED ON THE HETEROSCEDASTICITY EFFECT</b> <i>Aleksandr Skatkov, Aleksey Bryukhovetskiy, Victoria Shevchenko, Dmitry Voronin</i> .....	562
<b>A NETWORK PLATFORM FOR CREATING DIGITAL ENTREPRENEURSHIP IN CLOUD ENVIRONMENT BASED ON BIG DATA</b> <i>Heresh Beyadar, Maryam Askari, Ararat Askari</i> .....	566
<b>SMART CONTROL SYSTEM OF THERMAL MODE OF STABILIZATION COLUMN</b> <i>Gulyaev S.V.</i> .....	570
<b>DEVELOPING A COMPUTATION ALGORITHM FOR APPROXIMATION SOLUTION OF LINEAR FREDHOLM-STIELTJES INTEGRAL EQUATIONS OF SECOND KIND USING GENERALIZED TRAPEZOID QUADRATURE METHOD</b> <i>Isa Muslu, Moussa Mahamat Boukar</i> .....	575
<b>TOWARDS OPTIMIZATION OF AVAILABILITY AND COST IN SELECTION OF GEO-DISTRIBUTED CLOUDS DATACENTER</b> <i>Hasan Ziafat, Seyed Morteza Babamir</i> .....	580
<b>ON THE METHODS OF COLLECTING AND STORING BIG NETWORK TRAFFIC</b> <i>Ramiz Shikhaliyev</i> .....	585
<b>NEW GENERATION NETWORKS PERFORMANCE ANALYSIS AND OPTIMIZATION</b> <i>Zaychenko Yuriy, Gasanov Aydin, Galib Hamidov</i> .....	588

## SESSION 6. ICT IN GOVERNANCE, BUSINESS ADMINISTRATION, FINANCE AND ECONOMY

<b>E-SERVICES SECURITY ASSESSMENT MODEL</b> <i>Yadigar Imamverdiyev</i> .....	595
<b>A FUZZY LOGIC APPROACH TO PREDICT THE BEST FITTED APPAREL SIZE IN ONLINE MARKETING</b> <i>Efendi Nasibov, Alper Vahaplar, Murat Demir, Burak Okur</i> .....	599
<b>STATIC MODEL OF EQUILIBRIUM PRICES ON MUTUAL DEBTS OF SUBJECTS OF GLOBAL ECONOMY</b> <i>Yadulla Hasanli</i> .....	603
<b>MODEL EVALUATION OF AN INNOVATIVE CAPITAL</b> <i>Arzu Huseynova, Ophelya Mazanova</i> .....	607
<b>IMPLEMENTING E-DEMOCRACY IN RUSSIA: INSTITUTIONAL RESOURCES AND MODERNIZATION RISKS</b> <i>Liliia Pankratova, Sergey Pankratov</i> .....	610
<b>ANALYZE OF RESULTS OF IMPLEMENTATION OF FUZZY-QUERIES AND MATHEMATICAL STRUCTURE OF THE RELATIONAL DATABASE IN CORPORATE INFORMATION SYSTEMS</b> <i>Kenan Kilic Suleyman, Nuray Kilic Bilal, Anar Rustemov Murshud, Tarlan Abdullayev Samad</i> .....	615
<b>MANAGEMENT OF HIGHER EDUCATION INSTITUTION STAFF ACTIVITY EFFICIENCY ON THE BASIS OF FLEXIBLE STIMULATION SYSTEM</b> <i>Dmitriy Anufriev, Olga Shikulskaya, Kanagat Dyusekeyev, Mikhail Shikulskiy</i> .....	619
<b>MANAGEMENT OF PUBLIC FINANCES THROUGH THE ELECTRONIC SYSTEMS AND IT'S POSITIVE SIDES</b> <i>Tea Khorguashvili, Tamar Makasarashvili, Giuli Giguashvili, Natia Khorguashvili</i> .....	624
<b>A CRITICAL ANALYSIS OF ZAMBIA'S E-GOVERNMENT ADOPTION</b> <i>Willard Munyoka, Manoj Maharaj</i> .....	627
<b>REGULATION OF NATURAL MONOPOLY VIA COMPETITION POLICY</b> <i>Adalat Muradov, Nazim Hajiyev, Fariz Guliyev</i> .....	633
<b>FEATURES ELECTRONIC PAYMENT SYSTEMS IN THE INFORMATION ECONOMY</b> <i>A.F. Musayev, A.G. Aliyev, E.H. Musayeva</i> .....	639
<b>SUSTAINABLE DEVELOPMENT OF MANUFACTURING ENTERPRISES BASED ON STRUCTURAL, INFOLOGICAL AND DYNAMIC MODELING</b> <i>R.T. Sirazetdinov, A.V. Samodurov, A.N. Khusnutdinov, E.N. Tarchinskaya</i> .....	642
<b>HOTSPOT INFORMATION OF PUBLIC OPINION IN E-GOVERNMENT</b> <i>Ramiz Aliguliyev, Günay Niftaliyeva</i> .....	645
<b>TECHNICAL AND COMMUNICATIONAL STANDARDS OF E-INVOICING</b> <i>Ilknur Gur Nalcaci</i> .....	647
<b>THE PREDICTION OF THE CHANCE OF SELLING OF HOUSES AS THE FACTOR OF FINANCIAL STABILITY</b> <i>Ceyhun Abbasov</i> .....	651
<b>USING WEB-BASED GEOINFORMATION TECHNOLOGIES WITHIN MICRO GEO-MARKETING RESEARCHES</b> <i>Milikhin M.M., Gritsenko Y.B., Ekhlakov Yu.P., Zhukovsky O.I., Senchenko P.V.</i> .....	655
<b>COMPARATIVE ANALYSIS OF STRATEGIES AND TRENDS SHAPING THE INFORMATION ECONOMY OF AZERBAIJAN WITH LEADING COUNTRIES</b> <i>A.G. Aliyev, R.O. Shahverdiyeva, V.A. Abbasova</i> .....	660

## SESSION 7. ICT IN EDUCATION, HUMANITIES, SOCIAL SCIENCES AND RESEARCH

<b>ICT IN HUMANITIES: PHENOMENON OF CORPUS LINGUISTICS</b> <i>Galina Kedrova, Maria Volkova</i> .....	667
<b>INTERACTIVE WHITEBOARD IN MOTIVATION OF PUPILS OF PRIMARY SCHOOL</b> <i>Gabriel Báñez, Danka Lukáčová, Lukáš Vaněk, Peter Hrubý</i> .....	672
<b>EXPERT APPROACH TO STATISTICAL ASSESSMENT OF EDUCATION QUALITY: THE CASE OF AZERBAIJAN</b> <i>Sardar Shabanov, Fariz Quliyev</i> .....	676
<b>INFORMATION SYSTEMS AS A COMPONENT PART OF TERTIARY EDUCATION QUALITY ASSURANCE</b> <i>Alena Hašková</i> .....	679

<b>AUDIOVISUAL TECHNOLOGIES FOR FOREIGN LANGUAGES TEACHING</b>	
<i>Veronika Pisarenko, Shavadi Arsaliev</i> .....	684
<b>DEVELOPMENT OF INTELLIGENT LEARNING SYSTEM BASED ON THE ONTOLOGICAL APPROACH</b>	
<i>A.N. Afanasyev, N.N. Voit, D.S. Kanev</i> .....	690
<b>LORAN-C CYCLE IDENTIFICATION AND ECD ESTIMATION IN PRESENCE OF WHITE GAUSSIAN NOISE</b>	
<i>Ali Kafaei Zad Tehrani, Ali Pourmohammad</i> .....	694
<b>SIMULATION OF VIRTUAL ENVIRONMENT FOR THE DEVELOPMENT OF TEACHING LABORATORIES</b>	
<i>Kseniia Kuzmina, Anzhela Andreeva</i> .....	698
<b>THE IMPACT OF PULSE SHAPING FILTERS ON OFDM-BASED VISIBLE LIGHT COMMUNICATIONS</b>	
<i>Omer Narmanlioglu, Murat Uysal, Refik Caglar Kizilirmak</i> .....	700
<b>THE INFLUENCE AND ROLE OF CAD AND COMPUTER MATHEMATICS IN ENGINEERING EDUCATION</b>	
<i>S.T. Huseynov</i> .....	704
<b>WEB APPLICATION AS SUPPORT FOR LEARNING METHODOLOGY IN INFORMATICS EDUCATION</b>	
<i>Peter Kuna, Martin Vozár</i> .....	709
<b>CONSTRUCTION OF INDIVIDUAL EDUCATIONAL TRAJECTORY OF STUDENTS BASED ON E-LEARNING</b>	
<i>Rinat R. Ibatullin, Ellina S. Anisimova</i> .....	714
<b>PROFESSIONAL TRAINING IN EMBEDDED SYSTEMS AND ITS PROMOTION</b>	
<i>Alena Hašková, Dirk Van Merode</i> .....	718
<b>IMPACT FACTOR PENALIZED BY SELF-CITATIONS</b>	
<i>Rasim Alguliyev, Ramiz Aliguliyev, Nigar Ismayilova</i> .....	723
<b>DEVELOPMENT OF THE VIRTUAL PHYSICAL LABORATORY WORK “FRANCK-HERTZ EXPERIMENT”</b>	
<i>Madina Ipalakova, Yevgeniya Daineko, Mariya Brodyagina, Marina Yunnikova, Zhiger Bolatov, Yermek Yessenov</i> .....	727
<b>SEMI-AUTOMATIC ANNOTATION TOOL FOR SIGN LANGUAGES</b>	
<i>Kairat Aitpayev, Shynggys Islam, Alfarabi Imashev</i> .....	731
<b>EDUCATION OF GONIOMETRIC FUNCTIONS WITH MATLAB SOFTWARE</b>	
<i>Lucia Rumanová, Viliam Ďuriš</i> .....	735
<b>GEOMETRY SOFTWARE CABRI 3D IN TEACHING STEREOMETRY</b>	
<i>Dusan Vallo, Julia Zahorska</i> .....	739
<b>MATHEMATICAL AND COMPUTER MODELING OF THE PROCESS OF GROUNDWATER POLLUTION</b>	
<i>Vladimir Krivykh, Zhanar Beldeubayeva, Saule Rakhmetullina</i> .....	743
<b>ELECTRONIC SCIENCE IN AZERBAIJAN: CURRENT STATUS, PROBLEMS AND PERSPECTIVES</b>	
<i>Rasim M.Alguliyev, Rashid Q.Alakbarov, Tahmasib Kh.Fataliyev</i> .....	746
<b>THE POSSIBILITIES OF USING EXPERIMENTS IN EDUCATION OF SPECIAL TECHNICAL SUBJECTS</b>	
<i>Gabriel Báñez, Danka Lukáčová, Jana Depešová, Lukáš Vaněk</i> .....	751
<b>ARCHITECTURE OF SMART LEARNING COURSES IN HIGHER EDUCATION</b>	
<i>Elena E. Merzon, Rinat R. Ibatullin</i> .....	755
<b>EVOLUTION OF DYNAMIC USER MODELS FOR ADAPTIVE EDUCATIONAL HYPERMEDIA SYSTEM (AEHS)</b>	
<i>Nafisa Abdo, Noureldien A. Noureldien</i> .....	759
<b>IT IN THE EDUCATIONAL PROGRAMS IN THE FIELD OF: "SAFETY OF PERSON'S ACTIVITY"</b>	
<i>Dmitrieva I.A., Gordienko L.V., Popova O.V.</i> .....	764
<b>COURSE SCHEDULER AND RECOMMENDATION SYSTEM FOR STUDENTS</b>	
<i>Suleyman Uslu, Can Ozturan, Mehmet Fatih Uslu</i> .....	768
<b>REWRITING, ACADEMIC FRAUD AND FALSIFICATION: ANALYZING CASES OF ACADEMIC PRACTICE IN ST. PETERSBURG, RUSSIA</b>	
<i>Rekhtina L.S., Pankratova L.S., Sokolov N.V., Karimov R.N.</i> .....	774
<b>MATLAB AND HEAT TRANSFER IN SOLID STATE</b>	
<i>Peter Kuna, Martin Vozár</i> .....	779
<b>VIDEO IN TEACHING</b>	
<i>Veronika Pisarenko, Galina Krasnoshchekova</i> .....	784

**SESSION 8. ICT IN MEDICINE AND HEALTH CARE**

<b>DICHOTIC LISTENING TEST IN CASE OF SMALL STIMULUS SET: RANDOM WALK AND SEQUENTIAL WALD ANALYSIS</b> <i>Elena Popova, Evgeny Wasserman, Nikolay Kartashev</i>	793
<b>ASSISTIVE HEALTHCARE HOME MONITORING SYSTEM FOR ELDERLY PEOPLE</b> <i>Ali Mubarakov, Yestay Zhengis, Yau Hee Kho</i>	796
<b>AN ADAPTIVE NETWORK-BASED FUZZY INFERENCE SYSTEM FOR ESTIMATING THE DURATION OF MEDICAL SERVICES: A CASE STUDY</b> <i>Ihsan Hakan Koksal, Buse Turkoglu, Mete Eminagaoglu</i>	801
<b>USING FUZZY LOGIC CONCEPTS IN CREATING THE DECISION MAKING EXPERT SYSTEM FOR CARDIO - VASCULAR DISEASES (CVD)</b> <i>Assemgul Duisenbayeva, Iskander Beisembetov, Lyazzat Atymtayeva</i>	807
<b>EFFECT OF FILTER SELECTION ON CLASSIFICATION OF EXTRASYSTOLE HEART SOUNDS VIA MOBILE DEVICES</b> <i>Huseyin Coskun, Tuncay Yigit, Arif Koyun, Omer Deperlioglu</i>	812
<b>DRAG DESIGN OF SULFANILAMIDE BASED ON THE TECHNOLOGY OF IMMUNE NETWORK MODELING AND ONTOLOGICAL APPROACH</b> <i>Samigulina G.A., Samigulina Z.I.</i>	817
<b>GENERATION OF BIOINSPIRED SEARCH PROCEDURES FOR OPTIMIZATION PROBLEMS</b> <i>Vladimir Kureichik, Dmitry Zaporozhets, Daria Zaruba</i>	822
<b>EXPERT SYSTEM FOR PHARMACY</b> <i>Sagdoldanova Aiyim, Atymtayeva Lyazzat</i>	827
<b>UTILIZING FUZZY COLORED PETRI-NETS TO MONITOR CARDIAC PACEMAKER BEHAVIOR</b> <i>Negar Majma, Seyed Morteza Babamir, Amirhassan Monadjemi</i>	832
<b>THE MESOTHELIOMA DISEASE DIAGNOSIS WITH ARTIFICIAL INTELLIGENCE METHODS</b> <i>Hamza Osman Ilhan, Enes Celik</i>	837
<b>EXPERIENCE OF USING OF MACHINE LEARNING METHODS TO IDENTIFY THE LEFT VENTRICLE REGION IN ECHOCARDIOGRAPHIC RECORDS</b> <i>A.O. Bobkova, V.V. Zyuzin, S.V. Porshnev, V.V. Bobkov</i>	841
<b>CLASSIFICATION OF BREAST CANCER BY USING PATTERN RECOGNITION TOOLS</b> <i>Laven Wahhab, Kadir Tufan, Shahriar Shamil Uulu</i>	845
<b>SENTIMENT ANALYSIS FOR AGGLUTINATIVE LANGUAGES</b> <i>Esref Adali, Abzetdin Adamov</i>	848

# Rewriting, academic fraud and falsification: analyzing cases of academic practice in St. Petersburg, Russia

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**Abstract**—The article discusses phenomenon of plagiarism forms in academic end education practice and its detection and reaction system.

**Index Terms**—rewriting, academic fraud, falsification higher education.

## I. INTRODUCTION

Information technologies are an essential part of the education system. E-learning is gradually developed and implemented in education process, not only as a conveyor of knowledge and information, but also as a communication buffer between faculty, administration, and students. This system should save resources and optimize learning process, reduce time budget of education agents and formalize communication between them. The article considers some complex issues in the work of certain elements of the implemented E-learning system and science.

Due to the overproduction of texts, as well as the demand to quickly produce new texts, the probability of plagiarism in a paper increases. A wide spread of the Internet, information technologies, and communication tools give to a vast audience access to a huge amount of information, which also increases the probability of textual borrowing in academic papers. Thus, according to various studies, the percentage of plagiarism in student papers increased from 23% to 90% during the period from 1941 to 2001 [1]. For example, the number of students in Russia from 1940 to 2015 has increased from 478,000 [2] to 14,191,000 people [3].

Scientists, participants and managers of major research projects, supervisors and even students are facing the need to check texts for plagiarism, as they are no longer confident in their own texts [4]. Previously, textual borrowing was possible to find

out only by manually comparing the two texts - the source and its replication. The information society offers a wide range of tools to facilitate this task. But the attitude to plagiarism has become more severe and serious. Simple, even automatic, comparison is no longer sufficient to define plagiarism in a text. There is a need for a serious, professional expertise of each individual case of textual borrowing to identify whether it is plagiarism or not. Increasing proportion of plagiarism toughens and complicates the procedure of inspection, and that requires more costs. Requirements for texts and their expertise are considerably growing. Now it is necessary not only to compare two texts, but also to conduct semantic analysis of the papers. That is poorly automated and requires manual comparison and the work of experts.

## II. RESEARCH METHODS

This article is based on the thorough analysis of 9 typical cases of plagiarism detection in student papers (there are more than 30 cases overall) in Saint Petersburg, Russia. These are papers submitted by the students of the final year of undergraduate program in Sociology on their major courses.

First of all, these cases illustrate different examples when the work of one student is stolen by the others and presented as their own paper. In 2011 there was a case when the successful work of one student was brought in a week three times by his/her co-students with minimal changes. But lately, cases of complete repeat of someone's work are rare. As a rule, the original text of the first paper is edited: parts of the text are put in different order, and words are replaced by synonyms. Among such cases the compilation of several works is a usual practice. These texts may belong to their co-students or senior students who studied earlier.

Primary this applies to text assignments (course programs and analytical reports) and practical tasks.

Plagiarism from the Internet sources (total or partial borrowing and their compilation) is almost a global problem. Such kind of plagiarism could be found in every second job. Most often it is detected in the section of a paper that presents methodological and theoretical bases of the work. This is a common case, but quite problematic for a check as plenty of materials are used from sources that are not indexed (social media, books or journals from private, closed databases or archives).

We consider separately cases of practical works downloaded from the Internet or fabricated, as there are no any plagiarism detection technologies for such papers. They are usually checked manually and it is effective only if part of the material is in the public domain.

### III. RESULTS

Rewriting is a natural component of the information explosion. It allows enormously increase the amount of information while reducing its cost and resource intensity [5]. The academic environment does not involve the use of rewriting as a source of new original texts. Rewriting is a skill that is necessary for abstracting of scientific sources, but it is not allowed in the final, original (especially research) texts. In the situation of “the tyranny of the moment” a student dwells on rewriting rather than trying to continue to work creatively with information from the initial source. This “tyranny of the moment” [6]. is felt not only by students who do not have time (motivation, desire) to work thoroughly with the original paper, but also by teachers (lecturers) who do not have time to educate, develop skills of independent, critical and creative writing in the class. Moreover, students are already immersed in an environment where rewriting is a commonplace. For this generation it is obvious that many of the tasks do not require the creation of a new text, it is enough just compiling it from materials previously created by other authors.

Plagiarism detection of students’ papers gradually becomes a mandatory procedure in the educational practice in the post-soviet space. In Russia a lot of universities have introduced requirements for the verification of the final qualifying papers for plagiarism. In Azerbaijan in 2016 began the development of a unified system for plagiarism checks of the texts in the spheres of education and science [7].

The main specialized system of plagiarism detection recognized by the Russian scientific and academic community is called “antiplagiat.ru”. It appeared in year 2007 and is still in the process of development. This is a basic tool to check texts. This system (a free version) allows you to create a personal profile where it is possible to download text files, and then the system searches for a match with its database of papers, educational materials, and public sites. These systems hide the algorithm of the work, but presumably the “antiplagiat.ru” system uses “w-

shingling based on N-grams with an additional normalization of texts in accordance with dictionary of synonyms, and finding of plagiarism locally has a trigger effect to protect against false positives” [8].

In several Russian universities are introduced e-learning and internal communication systems right now. In Saint Petersburg State University, it is the system named Blackboard (<https://bb.spbu.ru>), which consists of three platforms - Blackboard Course Delivery, Blackboard Content Management, Blackboard Community Engagement. To check downloaded texts Blackboard uses such component as SafeAssign. The Higher School of Economics University uses the LMS system (Learning Management System - <http://lms.hse.ru>) which allows to download texts in an extended version of the “antiplagiat.ru” service. Modification and enhancement of applications comprising these systems still require a lot of time. Their users constantly address to support division and are forced to bypass the limitations of the systems in order to complete their professional tasks. For instance, key problems of the Blackboard are following: basic functionality, not enough flexibility, clunky interface, technical difficulty or inability to organize work in groups/in pairs, sensitivity to the bibliographic data and common phrase.

As practice shows, the automatic plagiarism detection of papers is not enough. On the first stage of the check all works were tested by “antiplagiat.ru” system which is the leading one among existing in Russian. Such services warn that they are looking for the plagiarism, meaning matches in the text. But that is not enough for plagiarism detection to know what percentage of matches were found by the program. It is essential to understand what is behind found textual borrowing. This may be a list of references, properly executed quotes, set expressions and common phrases that simply cannot be formulated otherwise. That means that a match found by automated tools may be not plagiarism. It is important to explain this nuance to students. Each year students raise the question about the acceptable percentage of plagiarism in the work. Whilst according to the documents they signed before their admission to the university state that writing works (in accordance with curriculum) prepared by student must not contain plagiarism. Works may contain a certain percentage of such textual borrowing, as quotations and illustrations if they are correctly formatted. Apparently it is up to 20% of textual borrowing that is allowed. Experience has shown that level of understanding of the differences of these phenomena among students is very low.

So, on the second stage there is a necessity to carry out further check based on the results provided by automated services. If the software allows you to view a report, you need to go through it and see each case matches. Internet is a very mobile system and in the case of the anti-plagiarism report the links, which should show the alleged source, often do not work. Then teachers have to carry out manual checks of the matches, using public search engines (like “Google”, “Yandex”). This procedure requires form a lecturer time and resources, research skills and



knowledge of different software systems that allow fixing the fact of plagiarism.

Thus, the first level of such “forced” plagiarism is a rewrite without references. It seems to be a natural reaction of the generation to a task that is considered daunting and excessive. (That is the result of “the tyranny of the moment” when resources are limited.)

Let us consider the example of a good student paper containing a rewriting without causing any damage to its content. It is a work of group of students which is, according to the “antiplagiat.ru” service, original on 96.43%, meaning the amount of borrowing in the text is 3.57%. The work regarded issues of identifying and detecting signs of social identity in everyday life. In this study there were used valuable and correct scientific sources expanding and enriching the conceptual and basis of the paper. And the references were listed. The problem was in the lack of quotation marks (“\_”) on the both sides of the borrowed text. The necessity to use quotation marks was explained to the students and they solved the problem by adding them shortly afterwards. (Although there were cases when other students’ teams could not fulfill this requirement because they did not manage to detect borrowing text in their own paper and arrange everything properly.) This case can be seen as a rewriting which allows students to complete the task successfully. In fact, while preparing a research proposal there is absolutely no need to create new theoretical text, since it will be written worse by students then in the original version used by them. But academic rules exclude the possibility for students to use only someone else’s text. Students are required to complete a very intensive, consuming a lot of resources tasks, meaning to prepare their own academic products under the conditions of resource shortage [9] and integration in the environment where there are obvious easy solutions in the form of rewriting, for example.

Interestingly this paper was also submitted by other students from the same course as their own original work. The students who tried to cheat submitted this paper before the real authors. Actually it was one of the previous (unfinished) versions of the final paper that was given to them by real authors as an example of the task. This case, as well as others, shows that the students do not have a sense of the value of the original author’s work and their own creative work.

The second level of academic dishonesty is an attempt to create academic papers from other texts trying to imitate the scientific activities. Thus, the fabrication and falsification of meanings of academic activities happen. If rewriting does not lead to loss of previously created meanings, such compilation of texts leads to destruction of these meanings. Unfortunately, rewriting often transforms into plagiarism when there is not only absence of quotation marks of a text which is appropriate to be used, but instead a consciously created paper from fragments of other texts. An example of such case is a student’s essay (8 000 characters) devoted to the problem of homeless children. According to the “antiplagiat.ru” service the originality of this

text is just 9.88%, everything else is different pieces of other texts. At the second stage of plagiarism detection it turned out that this essay is an example of dual plagiarism. The essay was a downloaded text of student paper from the Internet, which is in turn, was a compilation of parts of texts written by other authors (“patchwork text”). There were only a few references to the sources used. This is an example of academic fraud [10]. But a passing glance given by a teacher at the paper may not raise any questions as the text has logic, and text pieces fit together, and the problem of homelessness and research approaches to it are well presented.

The third example illustrates a case where a set of “pieces” of a text are combined chaotically to form a meaningless, false and sophisticated text. The task was to prepare a research design to study some social issues of migration. The originality of the text according to the “antiplagiat.ru” service is 67%. The second stage of the check has shown that the submitted paper consists of different pieces of various texts mixed together. There were some references in the paper which were not related to the borrowing from the source text. The submitted paper contained references that were falsified. Drawbacks of this paper: borrowed pieces in the text are copied with misprints and errors; the text is replete with trivial phrases (at the level of common sense). There were selected most common and expatiative arguments for the compilation. They do not indicate a problem, do not justify the relevance of the work, and do not allow justify the sequence of researcher’s activities. The extracts from statistical compendiums are given without any reference to them. Interestingly, the manual search with the help of “Yandex” (search engine) showed that almost the whole paper consists of pieces from other texts. A high percentage of originality shown by the “antiplagiat.ru” service could be explained by the fact that the database of this service did not contain some original sources.

The third level is the partial or complete falsification of the academic process and academic product. It is criminal activity that must be stopped in the early stages of education, as it can completely discredit and devalue the whole scientific spheres. Below are presented examples related to the problem of falsification of papers/practical exercises by students. In one case, the students falsified the interview – they role played the interview which was published in “LiveJournal” (service for journals and blogs). Another example of falsification of the same task: some tracks that were not recorded during the interview were “glued” in it. It was possible to identify this because of the difference in recording quality, specificity of students’ conversation style. It was clearly heard that the text is read on the recording and there are places where the text was “glued”. This is very time consuming practice. Falsification of the interview takes more time and resources than the fulfillment of the task (to conduct an interview). Another instance is when the interview was completely borrowed from the article of the Russian internet media “BaltInfo.ru”. Students changed only names of the interviewee and the city of origin.

If rewriting and academic fraud can be checked with the help of technical means, falsification of practical exercise may be identified only by manual comparison of two files. But this requires creation of a database that contains all students' papers that could be compared with each other. In Russian universities there have been already introduced the system of communication between teachers and students which should solve this problem. It is a social network for internal use at the university supplemented with special software. Students submit all their papers only through this system, and lecturers check them their (upload reviews and comments). Thus, communication between students and lecturers become more formalized; implemented more strict time management - if a submission deadline has passed, a student will not be able to download a paper; formed an internal database of all student papers. When the same paper is uploaded into the database, the system should automatically identify and report such cases. But in fact, such databases are just in the process of formation at the moment. The database check file attributes and, so far, is not good in identifying repeating parts of the file or compilation within it. Internal systems of plagiarism detection have not proved to be effective yet. They create an additional burden on a lecturer for its maintenance, and thus taking his/her attention from checking of students' papers. Another effect of such systems concerns bibliographical references which are seen by the system as borrowings. Thus, bibliographical references increase the total percentage of plagiarism detected by the system. Students are determined to minimize the percentage of "plagiarism" by reducing a list of bibliographic references, as they do not understand the difference between plagiarism and borrowing from a text. There is a major controversy - the system is designed to check and teach students how to work with texts, to follow copyright laws and to save hyperlinked apparatus of science, but in fact it achieves the opposite effect as it destroys the habit of students to fix all the sources used. Another alternative was introduced in Azerbaijan in 2016. It is a development and implementation of a general system of plagiarism detection in texts for universities and research centers. Yet it is too early to evaluate its effectiveness [11]. Such idea has its benefits, as texts and papers can be spread between students not only from different courses, but also universities.

#### IV. CONCLUSION

Informational and software technologies for borrowing detection in papers designed to maintain and preserve the norms and rules of academic work with texts become more complex. The development of these systems requires very serious resources, as well as development of their interaction with other information systems (libraries, search engines). The development and refinement of these systems, and expertise in case of serious precedents requires work of a number of specialists: programmers who are capable of implementing the sophisticated algorithms, lawyers that deal with the legal aspects, marketing consultants [12], sociologists, economists, and certainly linguists that are able to assess and understand the features of word usage

and carry out semantic analysis of the text [13]. Complexity of these systems is already very high and their potential is not sufficient to eliminate the problem of manual plagiarism detection of the texts and difficult professional expertise. Rewriting technologies, plagiarism and falsification of academic papers are ahead of the development of these systems. When the "antiplagiat.ru" service was released a counter service "antiplagiat-killer.ru" appeared. That is a kind of arms race. New communication technologies have created endless amounts of information that are available to a large number of consumers. That requires constant replenishment of this information. Rewriting is an answer to this demand. The need to link new texts with original sources and to suppress theft of papers makes it necessary to develop new systems of sophisticated search and detection of borrowing. And they, in turn, force to look for new ways to "create" materials and/or opportunities to bypass the check. The dialectics of this process makes to constantly increase the resource intensity of these systems, thus distracting resources from the main goal - teaching students the norms of academic writing and development of their writing skills. The era when a student brought someone else's work ends with the emergence of the opportunity to compare student papers with papers from previous years. But there are technologies that are beginning to produce texts from materials that are not indexed by databases of plagiarism detection systems.

The practices of plagiarism are dangerous, because they destroy the frame of hyperlinking in science. But total detection of plagiarism and rigid copyright protection leads to the situation when information is "locked" in the narrow frames of citations. And that is even more dangerous and harmful for science. This anti-plagiarism war shadows the main purpose of the educational process. Students are no longer taught how to write a text or to conduct an interview, no one cares about that. What is important is whether a student is caught or not caught plagiarizing. And not to be caught plagiarizing is enough for a successful continuation of a career.

#### V. DISCUSSION

Plagiarism in academic texts is a social phenomenon which is a reaction of the actors of educational process to the spread of modern information technologies. Problem of plagiarism occurs in the following cases: 1) students do not understand the boundaries of legal and illegal usage of someone else's information product, 2) students do not understand the purposes of educational tasks assigned to them or believe these purposes are irrelevant, 3) students believe that rewriting technologies, fraud and falsifications are reliable and safe. But plagiarism is widely distributed in student texts also because of lecturers, meaning that: 1) lecturers are not interested in the process of creating a student text and control only the result, 2) lecturers give tasks that are not relevant to the modern level of development of information technologies and provoke plagiarism, 3) lecturers do not provide the declared level of control of student papers and texts. There is third party responsible for the problem of plagiarism it is academic

management which: 1) reduces the resources needed for the effective and close cooperation between lecturers and students, 2) formalizes the academic interaction, 3) tends to massification and simplification of educational processes. Plagiarism is the result of economy of resource from three sides - students, lecturers and management. The social problem is the latent criminal convention of these three groups on the admissibility of plagiarism in academic texts within the margin error of informational and technological tools that are used to monitor it at any given moment. But these tools do not solve the problem, but only reduce amount of attention paid to primary tasks of education and science. Moreover, they create alternative problem of artificial restrictions on the free dissemination of information that is necessary for the academic environment. Only the transition to social and information tools will allow moving the focus of control from overprotection of information to the motivation of its operators. The aim is to reduce benefits that come from the exploitation of someone else's intellectual labor. Solution of the plagiarism problem is in the field of social technologies, meaning reducing the benefits of using fraud and falsification in academic sphere.

The key point is the redistribution of educational procedures in accordance with the modern status of the student and correction of academic status itself. For centuries, students have created academic texts in order to achieve the participation in the elite club of intellectuals that are free from heavy physical labor for the sake of doing science. Modern society is close to the total displacement of manual labor by intellectual, but the latter has completely lost elitism. Overcoming the lack of information allows us to solve most of the intellectual problems without creating an original text. This means that the competent rewriting that implies respect for the law and science ethics, as well as the preservation of the original source of meaning, and provision of access to it via hyperlinks, is the necessary and sufficient level of competence for a large part of students, future professional practice of which does not imply intellectual creativity. Creative education demands significantly more resources than the one dominant today in the mass market. Teaching to write a text is much more expensive than doing rewriting. Therefore, social

solution of the plagiarism problem implies restoring of the elite status of the creative intellectual labor and education.

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