

# **20th IFAC Conference on Technology, Culture and International Stability (TECIS 2021)**

IFAC PapersOnline Volume 54, Issue 13

Moscow, Russia  
14 – 17 September 2021

## **Editors:**

**Peter Kopacek  
Larry Stapleton  
Zinaida Andeeva**

ISBN: 978-1-7138-3965-1

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

To the extent permissible under applicable laws, no responsibility is assumed by the Owner, the Publisher or the Licensee for any injury and/or damage to persons or property as a result of any actual or alleged libelous statements, infringement of intellectual property or privacy rights, or products liability, whether resulting from negligence or otherwise, or from any use or operation of any ideas, instructions, procedures, products or methods contained in the material therein.

The publication of an advertisement in the POD Edition does not constitute on the part of the Owner, the Publisher or the Licensee a guarantee or endorsement of the quality or value of the advertised products or services described therein or of any of the representations or the claims made by the advertisers with respect to such products or services.

Copyright© (2021) by IFAC (International Federation of Automatic Control)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact the publisher, Elsevier Limited  
at the address below.

Elsevier Limited  
The Boulevard, Langford Lane  
Kidlington  
Oxford OX5 1GB UK

**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  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

SELECTED DEVELOPMENT TRENDS OF TECIS .....	1
<i>Peter Kopacek, Mary Doyle-Kent</i>	
DATA STRATEGY AND DATA TRUST – DRIVERS FOR BUSINESS DEVELOPMENT .....	8
<i>Norbert Jesse</i>	
SUSTAINABLE CONTROL OF ACTIVE SYSTEMS: DECENTRALIZATION AND INCENTIVE COMPATIBILITY .....	13
<i>A. Enaleev, D. Novikov</i>	
SPACE SCIENCE & TECHNOLOGY IN THE ARCTIC: PROMISES OF COOPERATION AND DEVELOPMENT AMID NEW SECURITY CHALLENGES .....	19
<i>Rasmus G. Bertelsen</i>	
ADAPTIVE AUTOMATED CONTROL SYSTEMS FOR GROWING SINGLE CRYSTALS BY THE METHODS OF CZOCHRALSKI, STEPANOV (EFG) AND KYROPOULOS USING A WEIGHT SENSOR.....	23
<i>Alexey V. Borodin, Vladimir A. Borodin, Dmitry N. Frantsev, Mikhail V. Yudin</i>	
INCENTIVE MECHANISMS FOR THE IMPLEMENTATION OF MANAGEMENT AUTOMATION TO IMPROVE STABILITY .....	29
<i>A. Enaleev</i>	
COVID-19 EFFECTS ON DISTRIBUTED MANUFACTURING .....	35
<i>Stefan H. Vieweg</i>	
CASE STUDY OF SINGLE PLANE BALANCING WITH FOUR TEST RUN METHOD .....	40
<i>Samet Gencoglu, Ismail Bogrekci, Pinar Demircioglu</i>	
SUSTAINABLE DEVELOPMENT OF SOCIAL SYSTEMS: A VIEW FROM THE GEOMETRIC THEORY OF BEHAVIOR .....	46
<i>Yury I. Brodsky</i>	
CHAT PROGRAMS IN THE FRAME OF CONTROL SYSTEM .....	52
<i>St. Penkov, A. Taneva</i>	
TRANSFORMATION OF THE ORGANIZATION'S INTERACTION WITH THE CONSUMERS IN THE CONDITIONS OF METAMODERNISM .....	57
<i>First A. Galina N. Ryazanova, Second B. Svetlana L. Sazanova</i>	
CHANGING MINDS AND AUTONOMOUS VEHICLES .....	63
<i>Elia Vardaki</i>	
A COMMUNICATION SYSTEM FOR SMART NETWORK SYSTEMS.....	68
<i>Agon Kokaj, Betim Maloku</i>	
NOTES ABOUT THE ATTITUDE CONTROL PROBLEM.....	72
<i>Vsevolod O. Korepanov</i>	
POSSIBILITIES AND PROBLEMS OF STATION-LEVEL OPTIMIZATION ALGORITHMS INTEGRATION INTO THE APPLICATION SOFTWARE OF PROGRAM AND TECHNICAL COMPLEXES OF INTELLIGENT AUTOMATED CONTROL SYSTEMS OF TPP.....	75
<i>E. K. Arakelyan, S. V. Mezin, F. F. Pashchenko, A. A. Kosoy</i>	

AUTOMATION OF THE INFORMATION SUPPORT SYSTEM FOR ENVIRONMENTAL MANAGEMENT IN THE REGION .....	81
<i>S. Ratner, A. Kovalev</i>	
DECISION SUPPORT IN THE AUTOMATED COMPIRATION OF INDIVIDUAL TRAINING MODULE BASED ON THE EMOTIONAL STATE OF STUDENTS .....	85
<i>Adelina Iulamanova, Diana Bogdanova, Vitaliy Kotelnikov</i>	
COGNITIVE MODELLING-DRIVEN TIME SERIES FORECASTING FOR PREDICTING TARGET INDICATORS IN NON-STATIONARY PROCESSES .....	91
<i>Zinaida K. Avdeeva, Elena A. Grebenyuk, Svetlana V. Kovriga</i>	
WAYS TO REDUCE THE TIME OF RESPONSE TO THREATS TO AN AIRPORT .....	97
<i>Alina S. Koryakina, Vitaly V. Gryzunov, Vyachelav G. Burlov</i>	
SIMULATION MODEL FOR DETERMINING THE FLOOD EFFECTS CHARACTERISTICS .....	103
<i>Maria V. Khamutova, Alexander F. Rezhikov, Vadim A. Kushnikov, Vladimir A. Ivashchenko</i>	
MECHANISM OF CITIZEN EVALUATION OF POLICY USING MACHINE SELF-LEARNING.....	107
<i>Vladimir V. Tsyganov</i>	
EXPERTISE TECHNOLOGY FOR PROJECT OF INTERNATIONAL TRANSPORT CORRIDOR DEVELOPMENT .....	113
<i>A. Enaleev, V. Tsyganov</i>	
MODEL FOR MAINTAINING STABILITY OF CONTINUOUS PRODUCTION BASED ON NEURO-FUZZY SYSTEM .....	119
<i>Nikolay P. Fuchedzhi, Elena S. Baryshnikova, Vladimir A. Ivashchenko, Dmitry A. Vasiliev</i>	
ENSURING THE SECURITY OF THE OPERATION OF COMPLEX SYSTEMS: NEW MODELS AND ALGORITHMS .....	123
<i>Dmitry Kononov, Meran Furugyan</i>	
TOWARDS STRATEGIC REENGINEERING THE GLOBAL COMPUTER ENVIRONMENT FOR CONTROL OF SUSTAINABLE DEVELOPMENT OF SOCIAL SYSTEMS.....	129
<i>Yury S. Zatuliveter, Elena A. Fishchenko</i>	
IDENTIFICATION OF INTEGRATED RATING MECHANISMS AS AN APPROACH TO DISCRETE DATA ANALYSIS .....	134
<i>V. A. Sergeev, N. A. Korgin</i>	
METHODS OF SOCIO-ECONOMIC SYSTEMS ANALYSIS IN ORDER TO DIAGNOSE THE PROBLEMS OF TRANSFORMATION OF LAW IN THE CONTEXT OF DIGITALIZATION .....	140
<i>Larisa V. Bogatyryova, Olga A. Shepeleva, Vladimir A. Gruzman</i>	
SCENARIO ANALYSIS OF THE IMPACT OF ROCKET AND SPACE ACTIVITIES ON THE STATE OF THE ENVIRONMENT.....	145
<i>Igor V. Chernov</i>	
ANALYSIS OF ANTI-CORRUPTION MANAGEMENT EFFECTIVENESS BASED ON THE SCENARIO APPROACH (ON THE EXAMPLE OF THE CONSTRUCTION INDUSTRY).....	150
<i>Vladimir V. Kul'ba, Alexey B. Shelkov, Zinaida K. Avdeeva</i>	
SCENARIO ANALYSIS OF IMPROVING THE EFFECTIVENESS OF CYBERCRIME INVESTIGATION MANAGEMENT PROBLEMS.....	155
<i>Vladimir L. Schul'Tz, Vladimir V. Kul'ba, Alexey B. Shelkov, Larisa V. Bogatyryova</i>	

PSYCHOLOGICAL ANTECEDENTS AND OPPORTUNITIES FOR CORRECTING NEGATIVE ATTITUDES TOWARDS COVID-19 PREVENTION MEASURES .....	161
<i>Vladislav V. Latynov, Alexander V. Vanin</i>	
THE STUDY OF THE POSSIBILITIES OF CONSTRUCTING COGNITIVE MODELS OF COMPLEX SYSTEMS AS A RESULT OF THE ANALYSIS OF TIME SERIES OF A LIMITED NUMBER OF FACTORS ON THE EXAMPLE OF FINANCIAL MARKETS .....	166
<i>Igor V. Chernov, Ivan V. Cherenkov, Vadim R. Feyzov</i>	
DECREASING TAX EVASION BY ARTIFICIAL INTELLIGENCE .....	172
<i>A. Raikov</i>	
MANAGEMENT TRANSFORMATION WITH A SINGLE DIGITAL PLATFORM AS EXEMPLIFIED BY ACCOUNTING .....	178
<i>Victor Medennikov</i>	
ANALYSIS OF THE EMERGENCE OF TRUST IN THE INFORMATION FIELD AS A DECISION-MAKING TOOL .....	183
<i>M. A. Kovalenko, R. G. Bolbakov, V. A. Mordvinov</i>	
FROM REMOTE WORK TO DIGITAL NOMADS: TAX ISSUES AND TAX OPPORTUNITIES OF DIGITAL LIFESTYLE .....	188
<i>Vladimir Tyutyuryukov, Natalia Guseva</i>	
METHODS AND APPROACHES OF ARTIFICIAL INTELLIGENCE IN TAXATION AREA IN THE CONTEXT OF THE ETHICAL SYSTEM OF POST-NON-CLASSICAL SCIENTIFIC RATIONALITY .....	194
<i>Denis A. Zhurenkov, Artyom E. Poikin, Anton M. Saveliev, Tatiana A. Berkutova</i>	
PANEL DISCUSSION: COVID-19, TECHNOLOGY AND ETHICS .....	200
<i>Marion Hersh, Mary Doyle-Kent, Ines Bula, Dietrich Brandt</i>	
CONTROL THEORY CONCEPTS: ANALYSIS AND DESIGN, CONTROL AND COMMAND, CONTROL SUBJECT, MODEL REDUCTION .....	204
<i>Ernest S. Sleptsov, Olga G. Andrianova</i>	
STAGES OF KNOWLEDGE REPRESENTATION ON THE EXAMPLE OF THE TYPOLOGY OF INTERDISCIPLINARY: PHILOSOPHICAL ASPECTS .....	209
<i>E. Yu. Rusyaeva</i>	
WALKING THROUGH THE TURING WALL .....	215
<i>Albert R. Efimov, David I. Dubrovsky, Philipp M. Matveev</i>	
REFLEXIVITY AND ARTIFICIAL INTELLIGENCE IN CONTROL (SUBJECTNESS- ORIENTED APPROACH) .....	221
<i>Vladimir Lepskiy</i>	
“MOVEMENT STABILIZATION OF THE PARROT MAMBO QUADCOPTER ALONG A GIVEN TRAJECTORY BASED ON PID CONTROLLERS” .....	227
<i>I. Trenev, A. Tkachenko, A. Kustov</i>	
COST ORIENTED AUTONOMOUS WINDOW CLEANING ROBOT FROM MECHATRONIC SCRAP - MECHCLEANBOT .....	233
<i>Ines Bula, Edin Bula, Edmond Hajrizi</i>	

SYNTHESIS OF DIFFERENTIATORS TO ESTIMATE DERIVATIVES OF TARGET SIGNALS IN THE UAV CONTROL SYSTEM .....	239
<i>Yulia G. Kokunko, Svetlana A. Krasnova</i>	
SPECIALIZED GRIPPER-DISPENSER FOR DOSING LABORATORY MILL WITH GRINDING BODIES.....	245
<i>Nayden Chivarov, Petko Stoev, Svetoslav Yovkov, Nikolay Stoimenov, Stefan Chivarov</i>	
FLIGHT CONTROL OF A MULTICOPTER USING REINFORCEMENT LEARNING.....	251
<i>Francesco D'Apolito, Christoph Sulzbachner</i>	
ARGROHOBOTS: AN AFFORDABLE AND REPLICABLE GROUND HOMOGENEOUS ROBOT SWARM TESTBED.....	256
<i>Nestor I. Ospina, Eduardo Mojica-Nava, Luis G Jaimes, Juan M. Calderón</i>	
INTEGRATED ASSESSMENT METHOD FOR AUTOMATED SYSTEMS INSTABILITY .....	262
<i>V. B. Gusev, N. A. Isaeva</i>	
PROBLEMS OF OPTIMIZING THE MODES OF CHP WITH A COMPLEX COMPOSITION OF EQUIPMENT, TAKING INTO ACCOUNT THE PECULIARITIES OF THE CCGT AND STEAM POWER UNITS OPERATION .....	268
<i>E. K. Arakelyan, A. V. Andryushin, S. V. Mezin, F. F. Pashchenko, Y. Y. Yagupova</i>	
AN INCENTIVE MECHANISM FOR UAVS CROWDSENSING MARKETS, A NEGOTIATION APPROACH.....	274
<i>Luis G Jaimes, Janar Kahr, Juan M. Calderon</i>	
INDUSTRIAL INSURANCE GROUPS COST MANAGEMENT. MATHEMATICAL MODELING AND APPLIED SOFTWARE .....	280
<i>Alexey Yu. Zalozhnev, Denis V. Peremezhko</i>	
AUTOMATION SYSTEM BASED ON NLP FOR LEGAL CLINIC ASSISTANCE.....	283
<i>Daniel A. Rincón-Riveros, Sergio M. Salazar-Molina, William A. Pinto-Cáceres, Sindy P. Amaya, Juan M. Calderon</i>	
DECISION SUPPORT SYSTEMS FOR STABLE DEVELOPMENT OF AGRICULTURAL SMES.....	289
<i>Valery Akinfiev, Anatoly Tsvirkun</i>	
DESIGN AND CONSTRUCTION OF A COST-ORIENTED MOBILE ROBOT FOR DOMESTIC ASSISTANCE .....	293
<i>Brayan S. Pallares O., Tatiana A. Rozo M., Edgar C. Camacho, Jose Guillermo Guarnizo, Juan M. Calderon</i>	
LOW-PRICE PROSTHETIC HAND CONTROLLED BY EMG SIGNALS .....	299
<i>Narek N. Unanyan, Alexey A. Belov</i>	
WHY MODELLING THE COVID-19 PANDEMIC USING FUZZY COGNITIVE MAPS (FCM) .....	305
<i>Peter P. Groumpas</i>	
NON-PARAMETRIC SPIKING NEURAL NETWORK MODELLING OF THE EYE-MOVEMENT RESPONSE TO ENFORCED CONTROLLED ACCELERATIONS.....	311
<i>Vladislav Prud, Arthur Mukhamedov, Ernest Sleptsov, Olga Andrianova, Isaac Chairez</i>	
COVID-BOT: UV-C BASED AUTONOMOUS SANITIZING ROBOTIC PLATFORM FOR COVID-19.....	317
<i>Edgar C. Camacho, Nestor I. Ospina, Juan M. Calderón</i>	

INCLUSION, DIVERSITY OR DISPARITY IN TELEHEALTH DURING THE COVID-19 PANDEMIC .....	323
<i>M. Dvoryashina, E. Tarasenko</i>	
TELE-MEDICAL SYSTEM FOR REMOTE MONITORING OF PATIENTS WITH COVID 19 AND OTHER INFECTIOUS DISEASES .....	327
<i>Angel B. Ivanov, Kocho Hrisarov, Nayden Chivarov, Stefan Chivarov, Ivana Budinska</i>	
SELF-ORGANIZING CONTROL SYSTEMS FOR AUTONOMOUS EDUCATIONAL ROBOTIC COMPLEXES .....	333
<i>Mikhail F. Stepanov, Andrey M. Stepanov</i>	
SLIP DETECTION AND COMPENSATION SYSTEM FOR MOBILE ROBOT IN HETEROGENEOUS ENVIRONMENT.....	339
<i>A. S. Belyaev, O. A. Brylev, E. A. Ivanov</i>	
AUTONOMOUS CONTROL OF A SMALL SPACECRAFT IN INITIAL ORIENTATION MODES .....	345
<i>Ye. Somov, S. Butyrin, S. Somov</i>	
MOBILE ROBOT LOCALIZATION AND NAVIGATION USING LIDAR AND INDOOR GPS.....	351
<i>Denis Chikurtev, Nayden Chivarov, Stefan Chivarov, Ava Chikurteva</i>	
DETECTION AND FOLLOWING OF MOVING TARGET BY AN INDOOR MOBILE ROBOT USING MULTI-SENSOR INFORMATION .....	357
<i>Vasil L. Popov, Nikola G. Shakev, Andon V. Topalov, Sevil A. Ahmed</i>	
TOWARDS A DESIGN OF AN INTELLIGENT EDUCATIONAL SYSTEM .....	363
<i>Valentina Terzieva, Svetozar Ilchev, Katia Todorova, Rumen Andreev</i>	
GUIDANCE AND DIGITAL ATTITUDE CONTROL OF MINI-SATELLITES AND SPACE ROBOTS .....	369
<i>Ye. Somov, S. Butyrin, V. Rutkovsky, V. Glumov</i>	
DIVERSITY AND INCLUSION OF WOMEN WORKING AS ENGINEERS: A COMPARATIVE STUDY BETWEEN KOSOVO AND IRELAND .....	375
<i>Ines Bula, Mary Doyle Kent, Edin Bula, Edmond Hajrizi</i>	
AN OUTLINE OF THE STORY OF GIRLS IN CONTROL AND ITS SUCCESS IN MOTIVATING GIRLS INTERNATIONALLY.....	381
<i>Roxanne Jackson, Steffi Knorn, Damiano Varagnolo</i>	
ARTIFICIAL INTELLIGENCE AND HUMAN-MACHINE SYMBIOSIS IN PUBLIC EMPLOYMENT SERVICES (PES): LESSONS FROM ENGINEER AND TRADE UNIONIST, PROFESSOR MICHAEL COOLEY .....	387
<i>John Organ, Brenda O'Neill, Larry Stapleton</i>	
FEATURES OF THE MEDIA ENVIRONMENT IN THE CONDITIONS OF DIGITALIZATION OF SOCIAL COMMUNICATIONS.....	393
<i>Boris Slavin, Alexander Slavin</i>	
ETHICS OF ARTIFICIAL INTELLIGENCE AND POST-NON-CLASSICAL SCIENTIFIC RATIONALITY .....	397
<i>Anton M. Saveliev, Denis A. Zhurenkov, Artyom E. Poikin, Tatiana A. Berkutova</i>	

INNOVATION IN COMPANIES AT A TIME OF CRISIS: WHAT IS THE ROLE OF R&D UNITS AND EMPLOYMENT OF ACADEMIC RESEARCHERS IN BUSINESS.....	402
<i>Todor T. Yalamov</i>	
AUTOMATIZED DISASSEMBLY A TOOL FOR SAVING THE ENVIRONMENT .....	408
<i>P. Kopacek</i>	
ADOPTION OF COLLABORATIVE ROBOTICS IN INDUSTRY 5.0. AN IRISH INDUSTRY CASE STUDY .....	413
<i>Mary Doyle-Kent, Peter Kopacek</i>	
ROBUST STATE OBSERVERS FOR ELECTROMECHANICAL CONTROL PLANTS WITH SENSORLESS MANIPULATORS .....	419
<i>Dmitriy V. Krasnov, Anton V. Utkin</i>	
STABILITY OF A CERTAIN CLASS OF SECOND ORDER SWITCHED SYSTEMS .....	425
<i>Dmitrii V. Shatov</i>	
HYBRID CONTROL ALGORITHM BASED ON LQR AND GENETIC ALGORITHM FOR ACTIVE SUPPORT WEIGHT COMPENSATION SYSTEM .....	431
<i>A. S. Belyaev, O. Yu. Sumenkov</i>	
THE BRACHISTOCHRONE PROBLEM WITH CONSTRAINTS ON THE CURVATURE OF THE TRAJECTORY.....	437
<i>S. S. Lemak, M. D. Belousova</i>	
ANTHROPOMORPHIC ARM CONTROL SYSTEM WITH REMOTE GESTURE TRACKING.....	443
<i>Narek N. Unanyan, Alexey A. Belov</i>	
STABILIZATION PROBLEM A QUADROTOR USING A LINEAR-QUADRATIC REGULATOR: MODELLING AND PRACTICE .....	449
<i>A. A. Tkachenko, I. S. Trenev, A. V. Yurchenkov</i>	
TECHNO-ECONOMIC ANALYSIS OF HRES IN SOUTH-EAST OF IRELAND .....	454
<i>Md Mizanur, Mary Doyle Kent, Peter Kopacek</i>	
A CONTROL MODEL FOR ICT EDUCATIONAL PURPOSES.....	460
<i>Agon Kokaj, Betim Maloku</i>	
A CRITICAL HISTORICAL AND SCIENTIFIC OVERVIEW OF ALL INDUSTRIAL REVOLUTIONS .....	464
<i>Peter P. Groumpos</i>	
INDUSTRIAL CONTROL SYSTEM AVAILABILITY ASSESSMENT WITH A METRIC BASED ON DELAY AND DEPENDENCY.....	472
<i>A. A. Baybulatov, V. G. Promyslov</i>	
THE INVESTIGATION OF THE CHARACTERISTICS OF CONFLICTS IN INDUSTRIAL ORGANIZATIONS BASED ON MODELING.....	477
<i>Igor Ya. Lvovich, Yakov E. Lvovich, Andrey P. Preobrazhenskiy, Yuriy P. Preobrazhenskiy, Oleg N. Choporov</i>	
APPLICATION OF VISUAL-COGNITIVE APPROACH TO DECISION SUPPORT FOR CONCEPT DEVELOPMENT IN SYSTEMS ENGINEERING.....	482
<i>Alena Zakharova, Aleksandr Podvesovskii</i>	

DEFINING THE CRITICAL CHARACTERISTICS OF UNMANNED VEHICLES IN A SMART CITY.....	488
<i>Mark V. Mamchenko, Mariya A. Romanova, Peter M. Trefilov</i>	
ALGORITHM FOR BUILDING A CYBERPHYSICAL SYSTEM OPERATOR PROFILE FOR ADAPTIVE AUTHENTICATION .....	493
<i>Andrey Y. Iskhakov, Anastasia O. Iskhakova, Roman V. Meshcheryakov</i>	
ENSURING THE SOFTWARE QUALITY FOR CRITICAL INFRASTRUCTURE OBJECTS .....	499
<i>Elena Jharko</i>	
ESTIMATION OF THE LIMITS OF ECONOMIC GROWTH IN THE TECHNOLOGY EQUILIBRIUM MODEL .....	505
<i>V. B. Gusev</i>	
A LOW-COST INTEGRATED CONCEPT FOR THE HYBRIDISATION AND ELECTRIC CONVERSION OF CARS AND OTHER MECHATRONIC VEHICLES.....	511
<i>Rodrigo Alcoberro, Numan Durakbasa, Jorge Bauer, Peter Kopacek</i>	
EFFECTIVE SOLVING PORTFOLIO OPTIMIZATION PROBLEMS BY MEANS OF A MULTI-PERIOD DIVERSIFICATION MODEL .....	517
<i>V. Gulashki, K. Stoyanova</i>	
MANAGING TECHNOLOGICAL CHANGE OF THE RUSSIAN ECONOMY BASED ON THE PRINCIPLE OF TECHNOLOGICAL HOMOGENEITY .....	523
<i>Evgeny Yu. Khrustalev, Valeriy V. Iosifov, Alexey N. Omelchenko</i>	
DATA ANALYSIS ENVIRONMENT TO STUDY THE DYNAMICS IN ELECTRONIC DESIGN AUTOMATION INDUSTRY .....	528
<i>Galia Marinova, Aida Bitri</i>	
ADVANCED STATE FUZZY COGNITIVE MAPS APPLIED ON NEARLY ZERO ENERGY BUILDING MODEL.....	533
<i>Eleni S. Vergini, Peter P. Groumpas</i>	
THE ROLE OF WOMEN IN THE DIGITAL AGE: BALANCING PROFESSIONAL AND PERSONAL CHALLENGES DURING THE COVID-19 PANDEMIC.....	539
<i>Galia Marinova, Aida Bitri, Marsida Ibro</i>	
CHALLENGES OF WOMEN WORKING AS ENGINEERS: A COMPARATIVE STUDY BETWEEN KOSOVO AND IRELAND .....	545
<i>Ines Bula, Mary Doyle Kent, Edin Bula, Edmond Hajrizi</i>	
DIGITAL ENTERPRISE TECHNOLOGIES: DO ENTERPRISE CONTROL AND AUTOMATION TECHNOLOGIES REINFORCE GENDER BIASES AND MARGINALISATION.....	551
<i>N. Donnelly, L. Stapleton</i>	
THE INFLUENCE OF SOCIAL EFFECTS AND SOCIETAL EXPECTATIONS UPON FEMALE PARTICIPATION IN ENGINEERING .....	557
<i>Orlagh Costello, Catherine Ryan</i>	
D&I IN ENGINEERING EDUCATION, PAST, PRESENT, AND FUTURE: A COUNTRY CASE STUDY OF IRELAND .....	564
<i>Mary Doyle-Kent, Emily Watson</i>	

THE STATE OF PLAY IN DIVERSITY AND INCLUSION IN STEM–A REVIEW OF EMPIRICAL EVIDENCE, FOCUSING ON GENDER .....	570
<i>Fahmida N Chowdhury, Galia Marinova, Ella Ciuperca, Basabhatta Sen Bhattacharya, Mary Doyle-Kent</i>	
DIVERSITY AND INCLUSION WORKING GROUP: RAISING THE PROFILE OF DIVERSITY AND INCLUSION IN IFAC.....	576
<i>Brenda O'Neill, Larry Stapleton, Mary Doyle-Kent, Peter Kopacek</i>	
WEB USER IDENTIFICATION BASED ON BROWSER FINGERPRINTS USING MACHINE LEARNING METHODS .....	582
<i>Alexander A. Salomatin, Andrey Y. Iskhakov, Anastasia O. Iskhakova</i>	
CONVOLUTIONAL NEURAL NETWORK FOR CONVOLUTION OF AERIAL SURVEY IMAGES.....	588
<i>Nguyen Van Trong, Pashchenko Fedor Fedorovich, Le Duc Tiep, Vu Chien Cong</i>	
PERFORMANCE IMPROVEMENT IN PHYSICAL INTERNET SUPPLY CHAIN NETWORK USING HYBRID FRAMEWORK.....	593
<i>A. Chouar, S. Tetouani, A. Soulhi, J. Elalami</i>	
SEMANTIC TEXT ANALYSIS TECHNOLOGY APPLICATION IN ASSESSING CURRENT THREATS AND SOFTWARE VULNERABILITIES .....	599
<i>V. Vasilyev, A. Vulfin, V. Gvozdev, A. Nikonorov</i>	
ADAPTABLE RECOMMENDATION SYSTEM FOR OUTFIT SELECTION WITH DEEP LEARNING APPROACH .....	605
<i>Laura J. Padilla Reyes, Natalia Bonifaz Oviedo, Edgar C. Camacho, Juan M. Calderon</i>	
SUPERVISED MACHINE LEARNING OF CITIZENS AND POLITICAL STABILITY .....	611
<i>V. Tsyganov</i>	
MODELS OF EPIDEMIOLOGICAL SECURITY MANAGEMENT IN THE SPREAD OF THE SARS-COV-2 VIRUS .....	617
<i>N. Kereselidze</i>	
SYSTEMS ANALYSIS OF THE FOUNDATIONS FOR THE FORMATION OF NEW PARADIGMS OF CONTROL.....	622
<i>Vladimir Lepskiy</i>	
MODELS AND METHODS FOR A SAFE AVIATION TRANSPORT SYSTEMS' FUNCTIONING SUBJECT TO THE HUMAN FACTOR .....	627
<i>Leonid Yu. Filimonuk</i>	
AN APPROACH TO FINDING SOURCES OF POLLUTION TO MAINTAIN STABLE AIR QUALITY .....	631
<i>Roman Yu. Lapkovsky, Vladimir A. Ivashchenko, Nikita V. Lugovoy, Iraida A. Stepanovskaya</i>	
NEED TO CONTROL THE IONOSPHERE PERTURBATION UNDER THE POWERFUL RADIOWAVES INFLUENCE .....	636
<i>Victor A. Eremenko, Natalia I. Manaenkova</i>	
REVIEW ON FORMALIZATION OF BUSINESS MODEL EVALUATION FOR TECHNOLOGICAL COMPANIES WITH FOCUS ON THE ELECTRONIC DESIGN AUTOMATION INDUSTRY .....	640
<i>Galia Marinova, Aida Bitri</i>	

THE USE OF ICT IN OLDER ADULTS STRENGTHENS THEIR SOCIAL NETWORK AND REDUCES SOCIAL ISOLATION: LITERATURE REVIEW AND RESEARCH AGENDA .....	645
<i>Mihael Nedeljko, David Bogataj, Boris Miha Kaucic</i>	
IMPROVEMENT OF COGNITIVE ABILITIES OF OLDER EMPLOYEES WITH COMPUTERIZED COGNITIVE TRAINING (CCT).....	651
<i>Zdenka Milic Žepic</i>	
ADVANCED HEALTH TECHNOLOGIES REQUIRE SKILLS AND INFLUENCE THE CULTURE OF EDUCATION: LITERATURE REVIEW AND RESEARCH AGENDA .....	657
<i>Suzanna Mežnarec N., David Bogataj</i>	
MOBILE APPS SUPPORTING PEOPLE WITH DEMENTIA AND THEIR CARERS: LITERATURE REVIEW AND RESEARCH AGENDA .....	663
<i>Sanja Zgonec</i>	
CO-CREATORS OF WELLBEING - SMARTER ENGAGEMENT OF OLDER RESIDENTS.....	669
<i>Alenka Temeljotov Salaj, Coline Senior</i>	
OLDER ADULTS KNOWLEDGE ABOUT USING SMART TECHNOLOGY DURING THE COVID-19 CRISIS-A QUALITATIVE PILOT STUDY .....	675
<i>Ana Marija Hošnjak, Ana Pavlovic</i>	
IMPLEMENTING SAFETY FEATURES OF INDUSTRY 4.0 WITHOUT COMPROMISING SAFETY CULTURE.....	680
<i>Michael J. Lees, Monique C. Johnstone</i>	
CLASSIFICATION OF TEXTS USING A VOCABULARY OF ANTONYMS .....	686
<i>Giliazova A. Albina</i>	
ACADEMIC SPIN-OFFS AND THEIR PLACE IN THE MODERN WORLD ECONOMY .....	692
<i>Albena Vutsova, Martina Arabadzhieva</i>	
DIGITAL CURRENCIES AND COMMUNITY EMPOWERMENT IN AUSTRIA: GESELL'S CONCEPT OF EFFECTIVE DEMAND AS A BASIS FOR LOCAL DIGITAL CURRENCIES .....	698
<i>F. Janisch, L. Stapleton</i>	
ON SOME APPROACHES TO DEVELOPMENT OF FLIGHT SAFETY CONTROL SYSTEM FOR EXPERIMENTAL AND CIVIL AVIATION .....	704
<i>A. F. Pashchenko, V. I. Akhrameev</i>	
INTERNATIONAL INPUT-OUTPUT TABLES AS A TOOL FOR STRUCTURED ANALYSIS AND ASSESSMENT OF STABILITY IN RUSSIAN TRANSPORT SECTOR.....	710
<i>V. Varnavskii</i>	
EMPLOYMENT AND STABILITY DUE TO INNOVATIONS: A LOOK AT RUSSIA .....	715
<i>Oleg I. Dranko, Natalya V. Yandybaeva</i>	
NATIONAL SECURITY INDICATORS FORECASTING THROUGH THE PANDEMIC.....	721
<i>Sergey A. Prikazchikov, Natalya V. Yandybaeva, Aleksey S. Bogomolov, Konstantin I. Shuvalov</i>	
SETTING TASKS FOR CONSTRUCTING AN INTEGRATED DECISION SUPPORT AND CONTROL SYSTEM ACCORDING TO MINIMIZE LOSSES FROM HARMFUL EFFECTS OF ATMOSPHERIC POLLUTANTS .....	727
<i>Sergey A. Prikazchikov, Konstantin I. Shuvalov, Vadim A. Kushnikov, Elena V. Kushnikova</i>	

SMART MANAGEMENT FOR SMART CITIES - SYNCHRONIZED SOLUTIONS.....	732
<i>Alexander F. Pashchenko</i>	
STRUCTURAL ANALYSIS OF LARGE-SCALE SOCIO-TECHNICAL SYSTEMS BASED ON THE CONCEPT OF INFLUENCE.....	738
<i>O. I. Dranko, Yu. G. Rykov, A. A. Karandeev</i>	
REVIEW OF TELECARE IN SMART AGE-FRIENDLY CITIES.....	744
<i>Simon Colnar, Vlado Dimovski, David Bogataj</i>	
PLANNING DIGITAL TRANSFORMATION OF CARE IN RURAL AREAS.....	750
<i>Eneja Drobež, Valerija Rogelj, David Bogataj, Marija Bogataj</i>	
DIGITAL TRANSFORMATION OF COMMUNITY HEALTH AND SOCIAL SERVICES FOR AGEING COHORTS .....	756
<i>Valerija Rogelj, Alenka Temeljotov Salaj, David Bogataj</i>	
ENGINEERING TECHNOLOGY-BASED SOCIAL INNOVATIONS ACCOMMODATING FUNCTIONAL DECLINE OF OLDER ADULTS.....	762
<i>Juditा Peterlin, Vlado Dimovski, Marija Bogataj</i>	
SMART AGE-FRIENDLY ENVIRONMENTS.....	768
<i>Marta Kavšek, Valerija Rogelj, David Bogataj</i>	

**Author Index**