

WEST UKRAINIAN NATIONAL UNIVERSITY, UKRAINE
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WROCLAW UNIVERSITY OF ECONOMICS AND BUSINESS, POLAND
CZECHOSLOVAKIA SECTION OF IEEE / COMPUTER (C) SOCIETY CHAPTER
TERNOPIL REGION ASSOCIATION OF PROFESSIONALS IN COMPUTER
INFORMATION TECHNOLOGY, UKRAINE

2022 12th International Conference on
**ADVANCED COMPUTER
INFORMATION TECHNOLOGIES**
CONFERENCE PROGRAM



Spišská Kapitula, Slovakia
26-28 September 2022

ORGANIZERS

- West Ukrainian National University, Ukraine
- Catholic University in Ružomberok, Slovakia
- University of South Bohemia, Czech Republic
- Deggendorf Institute of Technology, Germany
- Wroclaw University of Economics and Business, Poland

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CONFERENCE SECTIONS

Section ID	Section Title / Location
S1	Computational Intelligence and Mathematical Modelling
S2	Information in Economy and Management
S3	Cyber Security
S4	Specialized Information and Computer Systems
S5	Artificial Intelligence and Cognitive Systems
S6	Information Technology in Education

CONFERENCE STATISTICS

Number of submitted papers – 215; Number of accepted papers –130;

Acceptance rate – 60 %

PARTICIPANTS BY COUNTRY

Austria, Belarus, Botswana, Brazil, Bulgaria, Canada, Czech Republik, China, Cyprus, Czech Republic, Egypt, Estonia, France, Germany, India, Indonezia, Italy, Kazakhstan, Kenya, Latvia, Lebanon, Lithuanian, Moldova, Namibia, Nigeria, Norway, Papua New Guinea, Poland, Romania, Rwanda, Serbia, Slovakia, Slovenia, South Africa, Taiwan, Tunis, Turkey, Ukraine, Uzbekistan.

CONFERENCE TIMETABLE

Physical location	A340	A222	A201
Zoom	Room 1	Room 2	Room 3
Monday, 26.09.2022			
8:30 - 10:00	Registration & Coffee (A340)		
10:00 - 11:00	Opening Ceremony (A340 / Room 1)		
11:00 - 13:00	S1. Block A	S2. Block A	S4. Block A
13:00 - 14:00	Lunch		
14:00 - 15:30	S1. Block B	S2. Block B	S4. Block B
15:30 - 16:00	Coffee break (A340)		
16:00 - 17:30	S1. Block C	S2. Block C	S4. Block C
18:00 - 21:00	Concert, Welcome Party		
Tuesday, 27.09.2022			
9:00 - 11:00	S1. Block D	S2. Block D	S5. Block A
11:00 - 11:30	Coffee break (A340)		
11:30 - 13:00	S1. Block E	S6. Block A	S5. Block B
13:00 - 14:00	Lunch		
15:00 - 20:00	Excursion		
Wednesday, 28.09.2022			
9:00 - 11:00	Poster Section (S1, S2, S4, S5, S6) (A340)		S3. Block A
11:00 - 11:30	Meeting of the Board (A201)		
11:30 - 12:00	Closing Ceremony (A340 / Room 1)		

ID	Titlle Section
S1	Computational Intelligence and Mathematical Modelling
S2	Information in Economy and Management
S3	Cyber Security
S4	Specialized Information and Computer Systems
S5	Artificial Intelligence and Cognitive Systems
S6	Information Technology in Education

All schedules of the conference are based on Central European Summer Time

PARTICIPANTS INSTRUCTION

The conference will be held as hybrid conference, attendees can attend the conference virtually from anywhere or even opt to visit the physical venue.

Online participation will take place via software ZOOM. The software will install once before using it, by clicking the link to the zoom room. Follow the installation instructions. On the website zoom.us you can also find the download and installation instructions. It is not necessary to create an account in zoom for joining the conference.

The conference will be held in the following ZOOM Meeting rooms. Either use the link below or in the programme or copy the Meeting ID to your Zoom-Software:

Name	Zoom Address	Meeting-ID	Code
Room 1	https://us02web.zoom.us/j/86221168835	862 2116 8835	2022
Room 2	https://us02web.zoom.us/j/83433699905	834 3369 9905	
Room 3	https://us02web.zoom.us/j/84460848477	844 6084 8477	

TIME LIMITS

Presentation: 7-10 minutes short presentation during the ZOOM Online Session or Offline.

Poster: 3-5 minutes short video presentation to workshopacit@gmail.com or Offline.

Discussion: 5 minutes after each presentation.

OPENING CEREMONY

Monday, 26th September

10:00 - 11:00

Physical Location: A340

ZOOM Location: [Room 1](#)

Welcome Speech and Participants Congratulation

Keynote Speakers

1	Dr. Jan Fesl, Czech Technical University in Prague (Czech Republic) Analysis and identification of encrypted traffic on the Internet
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S1: Computational Intelligence and Mathematical Modelling. Block A

Date: Monday 26th September

11:00 – 13:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#) / A340

1. *Alla Savchenko, Alexey Galuza, Ivan Kolenov, Nataly Protsay, Olga Tevyasheva, Halyna Holotaistrova.* Color-Based Determination of the Components Ratio in Two-Component Allochromatic Crystals
2. *Igor Grebennik, Olga Chorna, Inna Urniaieva.* Distribution of permutations with different cyclic structure in mathematical models of transportation problems
3. *Ihor Javorskyj, Roman Yuzefovych, Oleh Lychak, Roman Slyepko, Pavlo Semenov.* Hilbert Transform for Analysis of Amplitude Modulated Wide-band Random Signals
4. *Ihor Kosovych, Igor Cherevko, Yaroslav Vyklyuk, Denys Nevinskyi.* Simulation of Various Distribution Restrictions of COVID-19 using Cellular Automata
5. *Iryna Tuzyk, Igor Cherevko.* Algorithm for Studying the Stability of Linear Systems with Many Delays
6. *Janvier Mwitirehe, Cheruiyot Kipruto, Charles Ruranga.* Towards an Effective Monitoring, Evaluation and Learning (MEL) System: Challenges and Solutions in a Data Science Perspective
7. *Julia Nestor, Igor Boyko, Ivan Mudryk, Halyna Tsupryk, Yurii Stoianov.* Nitride Semiconductor Quantum Dots - Mathematical Models of the Electronic Spectrum and Methods for its Simulation
8. *Maksym Zaliskyi, Onyedikachi Chioma Okoro, Ivan Yashanov, Olga Shcherbyna.* Analysis of Learning Efficiency of Expert System for Decision-Making Support in Aviation

S1: Computational Intelligence and Mathematical Modelling. Block B

Date: Monday 26th September

14:00 – 15:30

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#) / A340

1. *Markian Nakonechnyi, Orest Ivakhiv, Yurii Hirniak.* Pulse-Width Modulator Simulation
2. *Michaela Zahradníková, Jan Eisner.* Unilaterally Supported Beam by an Elastic Obstacle
3. *Mules Oksana, Serge Dolgikh, Tamara Radivilova, Mykola Kotsipak, Yurii Bilak, Oleksii Baranovskyi.* Collaborative Human-AI Decision-Making Systems with Numerical Channels
4. *Mykhaylo Andriychuk, Victor Hoblyk, Volodymyr Pavlysh, Victor Tkachuk.* Modeling Radiating Systems for the GPS Applications
5. *Mykhaylo Andriychuk, Yarema Kuleshnyk.* Optimization with Restriction in the Generalized Phase Problem

6. *Mykola Dyvak, Andriy Melnyk, Libor Dostalek, Viktor Ostroverkhov, Lyutmyla Honchar, Ihor Romanets*. Repository of Interval Models of Dynamics of Concentrations of Harmful Emissions of Motor Transport

S1: Computational Intelligence and Mathematical Modelling. Block C

Date: Monday 26th September

16:00 – 17:30

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#) / A340

1. *Mykola Dyvak, Andriy Pukas, Volodymyr Manzhula, Natalia Kasatkina, Myroslav Komar, Vadym Zabchuk*. The Task of Parametric Identification the Interval Models with Nonlinear Parameters
2. *Mykola Dyvak, Andriy Pukas, Volodymyr Manzhula, Oleksandr Papa, Amantius Akimjak, Bogdan Maslyiak*. The Task of Structural Identification the Interval Models of Static Objects with Multiple Parameters
3. *Mykola Dyvak, Iryna Spivak, Svitlana Krepych, Libor Dostalek, Vladyslav Pasichnyk, Vadym Kobylan*. Software System for Modeling the Distribution of Harmful Emissions from Vehicles
4. *Mykola Dyvak, Volodymyr Yaskiv, Anna Yaskiv*. Simulation and Numerical Optimization of Specific Characteristics of the Unified Range of Power Converters
5. *Nazariy Lopuh, Yaroslav Pyanylo*. Numerical Model Analysis Of Atypical Gas Filtration In A Porous Medium
6. *Oleksandr Andreykiv, Iryna Dolinska, Nazar Hembara, Orest Svirchevskyi, Miroslav Kopnický, Zuzana Budayová*. Mathematical Modeling of Aging Processes of Pipeline Materials and Estimation of their Residual Lifetime

S1: Computational Intelligence and Mathematical Modelling. Block D

Date: Tuesday 27th September

9:00 – 11:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#) / A340

1. *Olena Syrotkina, Ziad Kobti, Mykhailo Aleksieiev, Borys Moroz, Iryna Udovyk, Grygorii Diachenko*. Mathematical Model and Method for Diagnosing the Operability of Information and Control Systems
2. *Olexandr Romanyuk, Oksana Romanyuk, Pavlo Mykhaylov, Roman Chekhmestruk, Tetiana Korobeinikova, Sergey Romanyuk*. Features of the Computational Process Organization of Initial Parameters Determination for Shading
3. *Olexandr Romanyuk, Oksana Romanyuk, Roman Chekhmestruk, Pavlo Mykhaylov, Volodymyr Maidaniuk, Tetiana Korobeinikova*. The Concept and Means of Adaptive Shading
4. *Olha Moroz, Volodymyr Stepashko*. New Two-parametric Mutation Operator for Inductive Modelling using Combinatorial-genetic Algorithm

5. *Onyedikachi Chioma Okoro, Maksym Zaliskyi, Celestine Nkemakolam Chukwu, Oleksii Holubnychyi*. A Method for Planning Spare Parts Inventory during Aircraft Operation
6. *Ouyang Yong, Wan Dou, Gao Rong, Ye Zhiwei, Orest Kochan*. Single-Phase Fault Detection Based on GCN-TCN Sparse-Attention Model
7. *Roman Pasichnyk, Andriy Melnyk, Iryna Bilous, Liudmyla Duma, Bohdan Pushkar, Roman Monko*. Historical Training Game Model with Mathematical and Information Aspects

S1: Computational Intelligence and Mathematical Modelling. Block E

Date: Tuesday 27th September

11:30 – 13:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#) / A340

1. *Sergii Khlamov, Vadym Savanevych, Iryna Tabakova, Tetiana Trunova*. Statistical Modeling for the Near-zero Apparent Motion Detection of Objects in Series of Images from Data Stream
2. *Tetiana Korobeinikova, Olexandr Romanyuk, Oksana Romanyuk, Volodymyr Maidaniuk, Roman Chekhmestruk, Sergey Romanyuk*. Web-applications Fault Tolerance and Autoscaling Provided by the Combined Method of Databases Scaling
3. *Volodymyr Sherstjuk, Maryna Zharikova, Stefan Pickl, Marina Alonso Villota, Irina Dorovskaja, Dmytro Chorny*. Modeling Hybrid Attacks and Operations to Assess the Threats in Early Warning Systems
4. *Yaroslav Pyanylo, Sofiya Tvardovska*. The Investigation of Wave Processes in Porous Medium using Fractional Time Derivatives
5. *Yaroslav Pyanylo*. Analysis Of Filtration Processes In Porous Environments Taking Into Account The Movement Of Capillaries

S1: Computational Intelligence and Mathematical Modelling. POSTER

Date: Wednesday 28th September

09:00 – 11:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: A340

1. *Andriy Melnyk, Ruslan Shevchuk, Oksana Huhul, Iurii Shcherbiak, Anton Shevchuk, Yuriy Franko*. Software Architecture for Mathematical Modelling Based on Interval and Ontology Approach
2. *Joan Chebet Tarus, Kennedy Ogada, Tobias Mwalili*. An Ensemble Based Model for Detecting Genetically Inherited Disorder
3. *Mykola Dyvak, Andriy Melnyk, Yevgeniya Martsenyuk, Nina Rohatynska, Ruslan Brukhanskyi, Sviatoslav Pytel*. Evolutionary Method based on Artificial Bee Colony and Ontological Approach for Structural Identification of Interval Discrete Models of Objects with Distributed Parameters
4. *Mykola Dyvak, Iryna Spivak, Svitlana Krepych, Taras Dyvak, Iryna Nedoshytko, Oksana Homotiuk*. Evolutionary Computations based on an

Artificial Bee Colony for the Analysis of Interval Data in the Problem of Air Pollution by Nitrogen Dioxide

5. *Olha Kovalchuk, Serhiy Banakh, Mariia Masonkova, Volodymyr Burdin, Oleh Zaverukha, Roman Ivanytskyy.* A Scoring Model for Support Decision Making in Criminal Justice

S2: Information in Economy and Management. Block A

Date: Monday 26th September

11:00 – 13:00

Session Chairs: Olena Liashenko, Artur Rot

Location: [Room 2](#) / A222

1. *Agnieszka Pilch, Ryszard Zygała, Wiesława Gryncewicz.* Quality Assessment of Translators using Deep Neural Networks for Polish-English and English-Polish Translation
2. *Alina Zhukovska, Tetiana Zheliu, Dmytro Shushpanov, Oleksandr Brechko, Chygur Olga, Olena Nytko.* Information System and Technologies in the Health Care Management
3. *Bohdan Yakymchuk, Olena Liashenko.* Forecasting of New Grocery Store Opening Success Using Machine Learning Algorithms
4. *Diana Mirzoieva, Ihor Oleksiv.* Links Between Export of Digital Services and Economic Complexity: a Comparative Study for Ukraine and its Trade Partners
5. *Gabriela-Liliana Stroe, Mihaela-Luminita Costea, Emil Costea.* Study of the Impact of Meteorological Phenomen in Flight Management
6. *Iuliia Gernego, Liudmyla Petrenko, Mykhailo Dyba, Svitlana Urvantseva.* Crowdfunding in the Context of Intelligent Information Technologies Development in Finance
7. *Ivan Ostroumov, Oleg Ivashchuk, Nataliia Kuzmenko.* Preliminary Estimation of War Impact in Ukraine on the Global Air Transportation
8. *Karolina Cwojdzinska, Marcin Hernes, Wiesława Gryncewicz, Artur Rot, Paweł Golec.* Book Recommendation using Collaborative Filtering Technology

S2: Information in Economy and Management. Block B

Date: Monday 26th September

14:00 – 15:30

Session Chairs: Olena Liashenko, Artur Rot

Location: [Room 2](#) / A222

1. *Lesia Buiak, Liudmyla Yemchuk, Larysa Dzhulii, Volodymyr Dzhulii, Larysa Skorobohata, Lesia Bilorusets.* Information and Communication Technologies as the Main Factor in the Development of Intellectual Capital of the Enterprise
2. *Lesia Buiak, Olga Gonchar, Larysa Dzhulii, Liudmyla Yemchuk, Hanna Tsymbaliuk, Lesia Bilorusets.* Information and Digital Technologies in the Evaluation and Development of International Cluster Systems

3. *Magdalena Parcheva*. Workplace Innovations in Digital Age
4. *Mykola Izha, Tetyana Pakhomova, Olha Slobodianiuk, Oleg Dolzhenkov, Yuliia Yevstiunina*. Information-Functional Modeling of the Resource Support for the Management Decision-Making Process in the Conditions of COVID-19
5. *Myroslav Kryshchanovych, Sierhiei Sakhanienko, Oleksandr Sylkin, Svitlana Lypovska, Olha Purtskhvanidze*. Information Support of Public Administration in the Conditions of COVID-19
6. *Nataliia Dziubanovska, Vadym Maslii*. The Assessment of the Impact Investments on the Economic Development of Ukraine Based on Panel Data

S2: Information in Economy and Management. Block C

Date: Monday 26th September

16:00 – 17:30

Session Chairs: Igor Grebennik, Roman Pasichnyk

Location: [Room 2](#) / A222

1. *Andriy Goncharenko*. Simulation on the Aircraft Engine By-Pass Ratio Optimization in Regards with the Number of the Passengers on Board
2. *Olena Liashenko, Oleksandr Podskrebko, Nadiia Ivanchenko*. The Impact of Data Analytics on the Nature of Doing Business
3. *Olena Liashenko, Tetyana Kravets, Anastasiia Filohina*. Modeling of Correlation on the Stock Market using Complex Network Methods
4. *Olexandr Yemelyanov, Kateryna Petrushka, Lilia Lesyk, Anastasiya Symak, Olena Vovk*. Evaluation of Information Support for Energy dySaving Project Management at Enterprises
5. *Olga Gonchar, Anatoliy Kholodenko, Mariia Bashchak*. Economic and Mathematical Modelling of Service Companies Competititon and Integration
6. *Vasyl Brych, Lyudmyla Shkvarchuk, Rostyslav Slav'yuk, Ruslan Skrynkovskyy, Galyna Liakhovych, Olena Borysiak*. Portfolio Optimization of Equity Funds

S2: Information in Economy and Management. Block D

Date: Tuesday 27th September

09:00 – 11:00

Session Chairs: Igor Grebennik, Roman Pasichnyk

Location: [Room 2](#) / A222

1. *Podolchak Nazar, Martyniuk Volodymyr, Tsygylyk Natalia, Dziurakh Yurii*. Improving the Assessment of Personnel Security Level and its Control using Human Intellectual Activity Simulation Model
2. *Serhii Hrybkov, Olga Seidykh, Lidia Vlasenko, Valerii Lytvynov*. Modification of the Genetic Algorithm for Building and Reconfiguring Schedules of Order Completion in the Field of Service Provision
3. *Svitlana Luchyk, Vasil Luchyk, Marharyta Luchyk, Yulia Manachynska, Volodymyr Yevdoshchak, Iryna Mustetsa*. Risk Management of Economic Security of Poultry Enterprise: Accounting and Analytical Model

4. *Viacheslav Dzhezdzhula, Iryna Yepifanova, Yurii Kravchyk*. Use of the Theory of Fuzzy Sets in Determining the Level of Enterprise Security
5. *Volodymyr Sarioglo, Maryna Ogay, Tetiana Lukovych, Dmytro Shushpanov, Olga Diakiv, Lina Diakovich*. Estimation of Energy Consumption by Ukrainian Households: Approaches, Models, Results
6. *Volodymyr Yankovyi, Yuriy Kozak, Ihor Lishchynskyy, Mariia Lyzun, Yevhen Savelyev, Vitalina Kuryliak*. Revaluation of Fixed Assets as the Main Factor of Non-Optimal Capital-Labour Ratio in Ukraine
7. *Zenovii-Mykhailo Zadorozhnyi, Volodymyr Muravskiy, Oleg Shevchuk, Viktor Rusin, Beáta Akimjaková, Mária Gažiová*. Intelligent Behavioural Analysis of Social Network Data for the Purposes of Accounting and Control
8. *Zenovii-Mykhailo Zadorozhnyi, Volodymyr Muravskiy, Vasyl Muravskiy, Nataliia Pochynok*. Transformation of Accounting Methods with the Use of Robotic Equipment with Artificial Intelligence

S2: Information in Economy and Management. POSTER

Date: Wednesday 28th September

09:00 – 11:00

Session Chairs: Igor Grebennik, Roman Pasichnyk

Location: A340

1. *Bohdan Melnyk, Petro Stakhiv, Nataliya Melnyk, Stepan Trokhanyak, Rostyslav Mykhailyshyn, Ivan Dyyak*. Web Application for Remote Document Signing
2. *Inna Sysoieva, Andriy Pukas, Zoriana Pushkar, Serghiy Radynskyy, Nadiia Yushchenko, Oleh Vatslavskiy*. Information Support of Social Audit
3. *Liliana Horal, Volodymyr Onyshchenko, Oleksandra Yakubyshyn, Vira Shyiko, Vasyl Brych*. Evaluation of Innovative Development
4. *Liubov Poberezhna, Liubomyr Poberezhnyi, Vasyl Brych, Lesia Shkitsa, Pavlo Popovych, Oksana Shevchuk*. Assessment of Environmental Risks Using Elements of Fuzzy Logic
5. *Oleksii Grevtsev, Ninel Selivanova, Vasyl Brych, Oksana Shevchuk, Ryslan Rozum, Yurii Rudyak*. Mathematical Modeling of the Stress-Strain State in Variable Thickness Axial Bodies
6. *Olha Kovalchuk, Mykola Shynkaryk, Kateryna Berezka, Ludmila Babala, Pavlo Chopyk, Pavlo Basistyi*. Data Mining Tools for Analysis of Dependence of Gas Consumption of the Gas Price for Housholds of the EU Memberd-States
7. *Sviatoslav Kniaz, Vasyl Brych, Viktoriya Marhasova, Yuriy Tyrkalo, Ruslan Skrynkovskyy, Alexander Sumets*. Modeling of the Information System of Environmental Risk Management of an Enterprise

S3: Cyber Security. Block A

Date: Wednesday 28th September

9:00 – 11:00

Session Chairs: Libor Dostálek, Ruslan Shevchuk

Location: [Room 3](#) / A201

1. *Igor Yakymenko, Mykhailo Kasianchuk, Inna Shylinska, Ruslan Shevchuk, Vasyl Yatskiv, Mikolaj Karpinski*. Polynomial Rabin Cryptosystem based on the Operation of Addition
2. *Maryna Nehrey, Iryna Voronenko, Abdel-Badeeh M. Salem*. Cybersecurity Assessment: World and Ukrainian Experience
3. *Oksana Desyatnyuk, Volodymyr Muravskyi, Oleg Shevchuk, Mykhailo Oleksiiv*. Dual Use of Internet of Things Technology in Accounting Automation and Cybersecurity
4. *Olha Ivanytska, Tetyana Manuilova, Kateryna Kolesnikova, Mykola Slobodianiuk, Yurii Norchuk*. Modeling the Information Security System Under the Impact of COVID-19
5. *Sara Vyhnaiova*. Ideal Lattices in Cryptography
6. *Stefan Korecko, Matus Pleva, Matus Haluska, Markus Hoff Skudal, Patrick Bours*. EMG Data Collection for Multimodal Keystroke Analysis

S4: Specialized Information and Computer Systems. Block A

Date: Monday 26th September

11:00 – 13:00

Session Chairs: Anatoliy Melnyk, Vasyl Yatskiv

Location: [Room 3](#) / A201

1. *Anatoliy Melnyk, Inna Iakovlieva*. Structural Matrix for Algorithm Flow Graph Representation in Computer
2. *Ivan Ostroumov, Nataliia Kuzmenko, Olena Kyzymchuk*. Estimation of Geodetic Altitude from Barometric One with Actual Meteorological Aerodrome Report Data
3. *Ivan Ostroumov, Nataliia Kuzmenko*. Performance of VOR/DME Navigation Aided by Altimeter Data
4. *Linos Nchena*. Smart House Assistive Technologies for Senior Citizens
5. *Maksym Lupei, Myroslav Shlahta, Oleksandr Mitsa, Yurii Horoshko, Hanna Tsybko, Vasyl Gorbachuk*. Development of an Interactive Map within the Implementation of Actual State and Public Directions
6. *Nikoleta Hroncova, Pavle Dakic*. Research Study on the Use of CI/CD Among Slovak Students
7. *Oleg Bisikalo, Oksana Kovtun, Viacheslav Kovtun*. The Concept of Automated Phonetic Analysis of a Speech with Asymptotic Adaptation to the Specifics of Phonation of Language Units
8. *Oleg Ivashchuk, Ivan Ostroumov, Nataliia Kuzmenko*. A Graph Analysis of Aviation Enroute Network

S4: Specialized Information and Computer Systems. Block B

Date: Monday 26th September

14:00 – 15:30

Session Chairs: Mykola Nikitchenko, Natalia Shakhovska

Location: [Room 3](#) / A201

1. *Oleksii Bilyk, Iryna Vergunova*. Information System for the Work of Scientific Councils with the Possibility of Voting

2. *Oleksii Dovhaniuk, Vitaly Deibuk*. CMOS Simulation of Mixed-Polarity Generalized Fredkin Gates
3. *Vasyl Tymchyshyn, Frank Otoo, Myroslav Komar, Volodymyr Shpak, Vita Semaniuk, Volodymyr Fronchko*. Model of an Autonomous Airmobile Complex for Measuring Air Pollution Concentrations by Vehicles
4. *Viktor Satsyk, Oksana Mekush, Nataliia Lishchyna, Nataliia Khrystynets, Larysa Gumeniuk, Liudmyla Korobchuk*. Soil Analysis Software Tool for Smart Control of Agronomic Data
5. *Viktor Shidlovsky, Olexandr Shidlovsky, Andriy Dyvak, Vitaliy Pryvrotskyy, Iryna Spivak*. Research of Efficiency of Information Technology of Intraoperative Neuromonitoring in the Prevention of Injuries of Laryngeal Nerves
6. *Vitalii Slobodzian, Maryna Molchanova, Oleksii Kovalchuk, Olena Sobko, Olexander Mazurets, Olexander Barmak, Iurii Krak*. An Approach Based on the Visualization Model for the Ukrainian Web Content Classification

S4: Specialized Information and Computer Systems. Block C

Date: Monday 26th September

16:00 – 17:30

Session Chairs: Mykola Nikitchenko, Natalia Shakhovska

Location: [Room 3](#) / A201

1. *Vladyslav Holubiev, Volodymyr Simashko, Edward Jarmoch, Peter Majda, Martin Taraj, Janka Bursová*. Toward Building Specialized Information Systems as Software Platforms
2. *Volodymyr Kornuta, Eduard Sobotnyk, Yuliia Katamai, Ihor-Mykhailo Katamai*. Using Microservice Architecture for High-Load Information Systems on the Example of MedicinePlanner Service
3. *Yuan-Cheng Lai, Shan-Yung Chen, Ssu-Fan Wang, Bor-Shen Lin*. A Weather-Based Traffic Prediction System using Big Data Techniques
4. *Andriy Pukas, Vitalii Smal, Iryna Voytyuk, Inna Sysoieva, Iryna Belova, Olga Zavytii*. Software Solution for Energy Smart Analyzer with IoT Module
5. *Roman Mysiuk, Volodymyr Yuzevych, Bohdan Koman, Mykhailo Yasynskyi*. High Availability System for Monitoring Material Degradation Processes at the Concrete-Polymer Interface

S4: Specialized Information and Computer Systems. POSTER

Date: Wednesday 28th September

9:00 – 11:00

Session Chairs: Anatoliy Melnyk, Vasyl Yatskiv

Location: A340

1. *Antonio Scarfò*. IoT Architectures Comparison for Patient Localization in Healthcare
2. *Ruslan Shevchuk, Roman Tykhiy, Andriy Melnyk, Mikolaj Karpinski, Jan Owedyk, Tetiana Yurchyshyn*. Cyber-physical System for Dynamic Annotating Real-world Objects using Augmented Reality

3. *Volodymyr Golitsyn, Olha Sushchenko, Yurii Bezkorovainyi*. Thermo-calibration of MEMS Sensors in Information Systems
4. *Yaroslav Nykolaychuk, Volodymyr Hryha, Natalia Vozna, Artur Voronych, Andriy Segin, Petro Humennyi*. High-performance Coprocessors for Arithmetic and Logic Operations of Multi-Bit Cores for Vector and Scalar Supercomputers

S5: Artificial Intelligence and Cognitive Systems. Block A

Date: Tuesday 27th September

9:00 – 11:00

Session Chairs: Bodyanskiy Yevgeniy, Jan Fesl

Location: [Room 3](#) / A201

1. *Ahmad Bilal Wardak, Jawad Rasheed, Amani Yahyaoui, Sadaf Waziry, Erdal Alimovski, Mirsat Yesiltepe*. Noise Presence Detection in QR Code Images
2. *Alpre Emre Celik, Jawad Rasheed, Amani Yahyaoui*. Machine Learning Approaches for Lung Cancer Prediction
3. *Anatolij Shevchenko, Maksym Vakulenko, Mykyta Klymenko*. The Ukrainian AI Strategy: Premises and Outlooks
4. *Ivan Izonin, Roman Tkachenko, Natalya Shakhovska, Bohdan Ilchyshyn, Michal Greguš, Christine Strauss*. Towards Data Normalization Task for the Efficient Mining of Medical Data
5. *Jan Fesl, Jiří Jelínek, Kateřina Horníčková, Zuzana Nevařilová, Michal Konopa, Marie Feslová*. AI-based System for Cultural Heritage Objects Identification from Real Photos
6. *Jiří Jelínek*. Data Structure and Simulation Model for Associative Reasoning
7. *Lena Elisa Scheegans, Kevin Heckmann, Robert Hoyer*. Exploiting Stage Information for Prediction of Switching Times of Traffic Actuated Signals Using Machine Learning
8. *Maksym Vakulenko*. A Tool for Scholarly Phonemic Transcription of Ukrainian Texts

S5: Artificial Intelligence and Cognitive Systems. Block B

Date: Tuesday 27th September

11:30 – 13:00

Session Chairs: Bodyanskiy Yevgeniy, Jan Fesl

Location: [Room 3](#) / A201

1. *Michael Krocka, Pavle Dakic, Valentino Vranic*. Automatic License Plate Recognition Using OpenCV
2. *Pylyp Prystavka, Serge Dolgikh, Oleksandr Kozachuk*. Terrain Image Recognition with Unsupervised Generative Representations: the Effect of Anomalies
3. *Sven Kirmess, Christina Sigl, Wolfgang Dorner*. Analysing Movement Patterns from Smartphones for the Training of Exoskeletons
4. *Yulia, Chuan-Kai Yang, Yuan-Cheng Lai*. Video-Based Text to American Sign Language via Transitional Motion Synthesis

5. *Zuzana Sokolova, Jan Stas, Daniel Hladek*. An Introduction to Detection of Hate Speech and Offensive Language in Slovak

S5: Artificial Intelligence and Cognitive Systems. POSTER

Date: Wednesday 28th September

9:00 – 11:00

Session Chairs: Bodyanskiy Yevgeniy, Jan Fesl

Location: A340

1. *Olha Kovalchuk, Serhiy Banakh, Mariia Masonkova, Kateryna Berezka, Serhii Mokhun, Olha Fedchyshyn*. Text Mining for the Analysis of Legal Texts
2. *Roland Szarka, Pavle Dakic, Valentino Vranic*. Cost-effective real-time parking space occupancy detection system
3. *Sergiy Sveleba, Ivan Katerynychuk, Ivan Kunyo, Ostap Semotyjuk, Natalia Sveleba, Mykhailo Ozhha*. Gradient Methods for Teaching a Multilayer Neural Network to Recognize Printed Digits
4. *Yaroslava Pushkarova, Galina Zaitseva, Mustafa Al Saker*. Prediction of Toxicity of Phenols Using Artificial Neural Networks

S6: Information Technology in Education. Block A

Date: Tuesday 27th September

11:30 – 13:00

Session Chairs: Akimjak Amantius, Dostalek Libor

Location: [Room 2](#) / A222

1. *Cemal Akturk, Tarık Talan, Ceren Cubukcu Cerasi*. Education 4.0 and University 4.0 from Society 5.0 Perspective
2. *Liudmyla Yurchyshena, Larysa Shaulska, Maryna Naumova*. Using R Programming Language to Cluster of Universities based on Sustainability Potential Indicators
3. *Olena Haitan*. Improving the Quality of IT Students Education: the Ukrainian Experience
4. *Olena Haitan*. Methods and Forms of Increasing the Student Involvement in Online Education Process for Computer Science Students
5. *Sergii Khlamov, Vadym Savanevych, Olexander Briukhovetskyi, Iryna Tabakova, Tetiana Trunova*. Astronomical Knowledge Discovery in Databases by the CoLiTec Software
6. *Volodymyr Kornuta, Olena Kornuta, Yuliia Katamai*. The Technique of Delivering Interactive Lectures Using Internet Technologies

S6: Information Technology in Education. POSTER

Date: Wednesday 28th September

9:00 – 11:00

Session Chairs: Akimjak Amantius, Dostalek Libor

Location: A340

1. *Andriy Pukas, Andrii Simak, Serhii Shandruk, Lesia Bilovus, Viacheslav Stepanenko, Antonina Demianiuk.* Features of Implementation the Academic Staff Performance Appraisal System
2. *Iurii Shcherbiak, Iryna Kuzma, Olha Bilyakovska, Kateryna Binytska, Olena Halian, Oleksandra Yankovych.* Modern Information Technologies for Teaching and Control of Knowledge Acquisition of Older Preschoolers and Primary School Students
3. *Lesia Dubchak, Nadiia Vasylkiv, Iryna Turchenko, Myroslav Komar, Tetiana Nadvynychna, Rudolf Volner.* Access Distribution to the Evaluation System Based on Fuzzy Logic
4. *Serhii Mokhun, Olha Fedchyshyn, Mykhailo Kasianchuk, Pavlo Chopyk, Pavlo Basystyi, Viktor Matsyuk.* Stellarium Software as a Means of Development of Students' Research Competence While Studying Physics and Astronomy
5. *Stanislav Ondas, Matus Pleva, Jozef Juhar, Eva Kiktova, Julius Zimmermann, Viktoria Soltesova.* Modified Ling Six Sound Test Audiometry Application
6. *Volodymyr Rak, Yurii Turanov, Iryna Lutsyk, Olha Potapchuk, Yuriy Franko, Andrii Uruskyi.* Analysis of the Target Use and Tools of Information Communication Technologies by Students of Pedagogical Specialties

Meeting of the Board

Wednesday, 28th September

11:00 – 11:30

Location: A201

Closing Ceremony

Wednesday, 28th September

11:30 – 12:00

Location: Zoom - [Room 1](#) / A340

- Concluding reports of Section Chairs
- Conference Summary
- Conference Closing