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UNIVERSITY OF SOUTH BOHEMIA, CZECH REPUBLIC
IEEE GERMANY SECTION/ COMMUNICATIONS SOCIETY GERMAN
CHAPTER(COM19)
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SOUTHEASTERN EUROPE, GERMANY
TERNOPIL REGION ASSOCIATION OF PROFESSIONALS IN COMPUTER
INFORMATION TECHNOLOGY, UKRAINE

2021 11th International Conference on
**ADVANCED COMPUTER
INFORMATION TECHNOLOGIES**

CONFERENCE PROGRAM



Deggendorf, Germany
September 15-17, 2021

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- Deggendorf Institute of Technology, Germany
- University of South Bohemia, Czech Republic
- IEEE Germany Section / Communications Society German Chapter (COM19)

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CONFERENCE SECTIONS

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

CONFERENCE STATISTICS

Number of submitted papers – 321; Number of accepted papers –164;

Acceptance rate – 51 %

PARTICIPANTS BY COUNTRY

Angola, Austria, Bulgaria, Cameroon, Canada, Congo, Côte d'Ivoire, Cyprus, Czech Republic, Egypt, England, Estonia, Finland, France, Germany, Ghana, Hong Kong, India, Indonesia, Italy, Jordan, Kazakhstan, Latvia, Libya, Lithuania, Luxembourg, Moldova, Nigeria, Norway, Pakistan, Poland, Portugal, Romania, Russia, Saudi Arabia, Slovakia, South Africa, Spain, Taiwan, Tunisia, Tunisia, Ukraine, USA, Uzbekistan.

PROGRAM AT A GLANCE

Wednesday, 15th September, 2021		
09:00-10:00	Conference Opening	ZOOM – Plenary Room
10:00-11:00	Regular Sessions	ZOOM – Room 1 , Room 2
11:00-12:00	Lunch	
12:00-15:00	Regular Sessions	ZOOM – Room 1 , Room 2
Thursday, 16th September, 2021		
08:00-11:00	Regular Sessions	ZOOM – Room 1 , Room 2
11:00-12:00	Lunch	
12:00-15:00	Regular Sessions	ZOOM – Room 1 , Room 2
Friday, 17th September, 2021		
08:00-09:00	Board Meeting	ZOOM – Plenary Room
09:00-11:00	Regular Sessions	ZOOM – Room 1 , Room 2
11:00-12:00	Closing Ceremony	ZOOM – Plenary Room

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

PARTICIPANTS INSTRUCTION

The conference will be held online using online rooms in the 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
Plenary Room	https://th-deg-de.zoom.us/j/82288079729	82288079729
Room 1	https://th-deg-de.zoom.us/j/89730707163	89730707163
Room 2	https://th-deg-de.zoom.us/j/81226314862	81226314862

TIME LIMITS

Session: 50 Minutes.

Presentation: 2-3 Minutes short presentation during the ZOOM Online Session.

Discussion: Total length of discussion 20-30 Minutes. After each presentation or at the end of all presentations (to be decided by the session chairs of the individual sessions)

CONFERENCE TIMETABLE

	Wednesday, 15.09.2021		Thursday, 16.09.2021		Friday, 17.09.2021	
	Room 1	Room 2	Room 1	Room 2	Room 1	Room 2
8:00 -9:00			S1. Block E	S2. Block D	Meeting of the Board	
09:00 -10:00	Plenary Sesssion Opening Ceremony		S1. Block F	S2. Block E	S4. Block D	S5. Block B
10:00 -11:00	S1. Block A	S3. Block A	S1. Block G	S2. Block F		
11:00 -12:00	Lunch Break		Lunch Break		Plenary Sesssion Closing Ceremony	
12:00 -13:00	S1. Block B	S2. Block A	S4. Block A	S2. Block G	ID	Section Title
13:00 -14:00	S1. Block C	S2. Block B	S4. Block B	S5. Block A	S1	Mathematical Modelling
14:00 -15:00	S1. Block D	S2. Block C	S4. Block C	S3. Block B	S2	Information in Economy and Management
					S3	Cyber Security
					S4	Specialized Information and Computer Systems
					S5	Artificial Intelligence

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

CONFERENCE OPENING

Wednesday, 15th September

09:00 - 10:00

Location: [Plenary Room](#)

1	Prof. Andrii Krysovatiy , Rector of Ternopil National Economic University (Ukraine) Welcome Speech and Participants Congratulation
2	Prof. Mykola Dyvak , Dean of Faculty of Computer Information Technologies of Ternopil National Economic University (Ukraine) Welcome Speech and Participants Congratulation
3	Prof. Wolfgang Dorner , Head of Institute of Applied Informatics of Deggendorf Institute of Technology (Germany) Welcome Speech and Participants Congratulation

Keynote Speaker

1	Prof. Abdel-Badeeh M. Salem , Head of Artificial Intelligence and Knowledge Engineering Research Labs, Professor of Computer Science, Faculty of Computer and Information Sciences, Ain Shams University (Egypt) The Potential Role of Artificial Intelligence in Smart Healthcare Systems
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S1: Mathematical Modeling. Block A

Date: Wednesday 15th September
10:00 – 11:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#)

1. Alexey Galuza, Olga Kostiuk, Alla Savchenko, Anastasiia Boiko, Sergii Harder, Halyna Holotaistrova. *Method for Quantitative Comparison of Criteria for the Color Closeness of Objects with Given Spectra*
2. Alla Savchenko, Alexey Galuza, Nataly Protsay, Ivan Kolenov, Olga Tevyasheva, Oleh Tonitsa. *Construction of a Linear Food Quality Classifier Based on Their Color Analysis*
3. Anatoliy Vlasyuk, Tetiana Tsvietkova, Ihor Ilkiv, Viktor Ogiychuk. *Mathematical Modelling of the Infiltration Impact on Heat Mass Transfer in Layered Soils Under Conditions of Heat Transfer*
4. Andrii Safonyk, Ivanna Hrytsiuk, Ihor Ilkiv, Ivan Tarhonii, Andrii Rudyk. *Dynamic Optimization of the Technological Water Treatment Process Automatic Control System*
5. Andrii Verstiak, Vasyl Hryhorkiv, Lesia Buiak, Mariia Hryhorkiv, Oksana Verstiak. *Ecological Footprint Impact Factors Forecasts using VAR Model: Decision Making Case Study From Ukraine*
6. Andriy Goncharenko. *Preferences Entropy Conditional Maximum in the Case of the Buyers' Optimal Preferences Distribution for the Price Choice*
7. Andriy Goncharenko. *Two Scenarios of the Same Income Obtaining*

S1: Mathematical Modeling. Block B

Date: Wednesday 15th September
12:00 – 13:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#)

1. Dmytro Mykhalyk, Mykhaylo Petryk, Ivan Goyanyuk, Vasyl Kovbashyn. *Software Algorithms for a Mathematical Model of Filtration-Diffusion Mass Transfer in the Medium of Microporous Particles*
2. Hanna Kucherova, Dmytro Ocheretin, Yuliia Honcharenko, Oksana Mykoliuk. *Modeling the Stakeholder's Behavior on the Base of Online Inquiries about Tertiary*
3. Igor Boyko, Ivan Mudryk, Mariia Petryk, Mykhaylo Petryk. *High-Performance Adsorption Modeling Methods with Feedback-Influences in n-component Nanoporous Media*
4. Igor Boyko, Mykhaylo Petryk, Ivan Mudryk, Yurii Stoianov, Halyna Tsupryk. *Mathematical Model of the Capacitor Based on Zeolite Material*
5. Igor Cherevko, Iryna Tuzyk, Svitlana Ilika, Andriy Pertsov. *Approximation of Systems with Delay and Algorithms for Modeling Their Stability*

6. Igor Grebennik, Nadiia Kalaida, Inna Urniaieva, Igor Ryabchenko, Viktor Reshetnik. *Placement of Different Types Containers at Railway Container Terminal Using Double-Stack*
7. Ihor Javorskyj, Oleh Lychak, Roman Yuzefovych, Pavlo Semenov. *Hilbert Transform of Multicomponent Narrow-Band Periodically Non-Stationary Random Signal*

S1: Mathematical Modeling. Block C

Date: **Wednesday 15th September**
13:00 – 14:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#)

1. Iryna Madiudia, Natalia Porplytsya, Kateryna Zelenetska, Ruslan Shevchuk. *Modeling Dynamics of Traffic for the E-Commerce Website in the Process of its Search Engine Optimization During the COVID-19 Pandemic*
2. Iryna Vergunova, Viktor Vergunov, Iuliia Rosemann. *Solving the Coefficient Inverse Problem by the Deep Galerkin Method*
3. Jiří Jelínek. *Double-Layer Simulation Model of Associative Reasoning*
4. Julia Nestor, Igor Boyko, Iaroslav Kinakh, Ivan Grod, Serhii Malovichko. *Mathematical Model of the Electronic Schemes for Nitride AlN/GaN Nanotubes*
5. Kyrylo Krasnikov. *Mathematical Model of Argon and Addition Mixing in Melt-Filling Tundish*
6. Ladislav Beranek, Radim Remes. *Network Partitioning as Cooperative Games with Costs of Links*
7. Leonid Lyubchyk, Galyna Grinberg, Olena Akhiezer, Olga Kostyuk, Iryna Serdiuk. *Stability Analysis of Aggregated and Time Decomposed Power Market Dynamic Model*

S1: Mathematical Modeling. Block D

Date: **Wednesday 15th September**
14:00 – 15:00

Session Chairs: Volodymyr Stepashko, Andriy Pukas

Location: [Room 1](#)

1. Maksym Zaliskyi, Olga Shcherbyna, Oleksiy Zuiev, Oleksandr Solomentsev, Olena Kozhokhina, Yuliia Petrova. *Statistical Data Processing for Radio Equipment in Case of Technical Condition Deterioration*
2. Mikhail Divizinyuk, Iryna Lutsyk, Volodymyr Rak, Natalia Kasatkina, Yuriy Franko. *Mathematical Model of Identification of Radar Targets for Security of Objects of Critical Infrastructure*
3. Monika Pšenicová, Pavel Kouba, Jan Eisner. *Critical Points for Reaction-Diffusion BVP with Newton Boundary Condition*

4. Mykola Dyvak, Andriy Pukas, Natalia Porplytsya, Iryna Oliinyk, Pavlo Basisty. *Method of Structural Identification the Interval Models of Static Objects*
5. Mykola Dyvak, Iryna Voytyuk, Natalia Porplytsya, Libor Dostalek. *Interval Discrete Equation as a Model of Soil and Groundwater Contamination by Nitrogen Dioxide and Nitrogen Acid*
6. Mykola Dyvak, Natalia Porplytsya, Andriy Dyvak, Olexandr Shidlovsky, Dmytro Osadchuk, Vitaliy Pryvrotskyy. *Interval Model for Assessing the Position of the Recurrent Laryngeal Nerve at the Site of Surgery Wound During Thyroid Surgery*
7. Mykola Dyvak, Roman Pasichnyk, Iryna Voytyuk. *Mathematical Model of Soil and Groundwater Contamination by Nitrogen Dioxide Taking Into Account the Factors Influencing the Diffusion Coefficient*

S1: Mathematical Modeling. Block E

Date: Thursday 16th September
08:00 – 09:00

Session Chairs: Jan Eisner, Natalia Porplytsya

Location: [Room 1](#)

1. Nataliia Zhukovska, Viktor Zhukovskyy, Andrii Safonyk. *Mathematical Modeling of Dependences Influence of Lamé Coefficients by Concentration and Temperature on Distributions of Spatial Soil Massif Displacements*
2. Nikolay Zablodsky, Roman Chuenko, Volodymyr Gritsyuk, Stanislav Kovalchuk, Oleksii Romanenko. *The Numerical Analysis of Electromechanical Characteristics of Twin-Screw Electromechanical Hydrolyzer*
3. Olha Sushchenko, Yuriy Bezkorovainyi, Oleksandr Salyuk, Volodymyr Golitsyn. *Mathematical Modeling of Non-orthogonal Measuring Device*
4. Olena Kuzmych, Nataliia Cherniashchuk, Nataliia Lishchyna, Valeriy Lishchyna, Oksana Mekush, Pavlo Gumenyuk. *Mobile Robot Motion Stability and Optimal Chassi Construction*
5. Olena Ovchynnikova, Constantin Belovsky, Olha Khan. *Neural Network Forecasting of International Population Migration*
6. Olexandr Romanyuk, Oksana Romanyuk, Olexandr Dudnyk, Anatoliy Snigur, Oleksandr Reyda, Sergey Romanyuk. *Global Lighting Based on Functionally Defined Surfaces and Voxels in Real Time Using a GPU*
7. Olga Ivanets, Iryna Morozova. *Features of Evaluation of Complex Objects with Stochastic Parameters*

S1: Mathematical Modeling. Block F

Date: Thursday 16th September
09:00 – 10:00

Session Chairs: Jan Eisner, Natalia Porplytsya

Location: [Room 1](#)

1. Pavlo Hryhoruk, Nila Khrushch, Svitlana Grygoruk. *Assessment of Regions' Socio-Economic Development Based on Bon-Metric Data*
2. Pavlo Mykhaylov, Sergey Vyatkin, Roman Chekhmestruk, Ivan Perun, Tetiana Korobeinikova, Lesya Mychuda. *A Method for Compressing Volume Data Using Perturbation Functions*
3. Pavlo Mykhaylov, Sergey Vyatkin, Roman Chekhmestruk, Ivan Perun, Tetiana Korobeinikova. *3D Shape Modeling Using Perturbation Functions*
4. Pavlo Mykhaylov, Sergey Vyatkin, Roman Chekhmestruk, Ivan Perun, Tetiana Korobeinikova. *Interactive Volume Rendering Method Using a 3D Texture*
5. Pavlo Mykhaylov, Sergey Vyatkin, Roman Chekhmestruk, Ivan Perun. *Method of Rotation and Arbitrary Movement with Scaling of Functionally Defined Objects*
6. Pavlo Mykhaylov, Sergey Vyatkin, Roman Chekhmestruk, Ivan Perun. *Multi-Volume Data Visualization Using Bounding Shells*

S1: Mathematical Modeling. Block G

Date: Thursday 16th September
10:00 – 11:00

Session Chairs: Jan Eisner, Natalia Porplytsya

Location: [Room 1](#)

1. Petro Kostrobij, Ivan Grygorchak, Bohdan Markovych, Iryna Ryzha, Oleksandra Viznovych, Mykhailo Tokarchuk. *Modeling of Subdiffusion Impedance in Multilayer Nanostructures*
2. Roman Havryliv, Iryna Kostiv, Volodymyr Maystruk. *Using the Computational Fluid Dynamic to the Wet Scrubbing Process Modeling*
3. Shivam Yadav, Alireza Tajafari Sahebi, László Juhász. *Adaptive Model Predictive Controller for Inverted Pendulum*
4. Svitlana Plaskon, Svitlana Shevelova, Ruslana Ruska, Olesya Martyniuk, Oksana Lesyk, Halyna Seniv. *Causal Relationships Between Gross Domestic Product, International Trade and Foreign Direct Investment in Ukraine*
5. Valeriyi Kuzmin, Olga Shcherbyna, Yuliia Petrova, Alina Osipchuk. *New Approaches to Linear Approximation in Condition of Heteroskedancity Data*
6. Vitaliy Kobets, Elizaveta Pilshchyk, Valentyna Mykhaylova. *Spatial Models of Countries Economic Development under Pandemic Condition*
7. Yaroslav Pyanylo, Anatoliy Lopatiev, Andriy Vlasov, Mykhailo Petrus, Andriy Demichkovskiy, Nazar Shtangret. *Main Methods of Numeric Series Analysis During Study of Biological Systems*

S2: Information in Economy and Management. Block A

Date: Wednesday 15th September
12:00 – 13:00

Session Chairs: Olena Liashenko, Zora Rihova

Location: [Room 2](#)

1. *Anatoly Mazaraki, Svitlana Melnychenko, Tatiana Tkachuk, Mariia Vovk, Iryna Prysakar, Oksana Poltavska. Cloud Models of Blockchain Technologies in Enterprise Management*
2. *Andrii Kaminskyi, Maryna Nehrey. Information Technology Model for Customer Relationship Management of Nonbank Lenders: Coupling Profitability and Risk*
3. *Andriy Krysovatty, Oksana Kurylo, Nataliya Synyutka, Olena Pozniakova. VAT Electronic Invoicing System: the Case of Ukraine*
4. *Oksana Desyatnyuk, Volodymyr Muravskyi, Oleg Shevchuk. Accounting Automation in Agroindustrial Enterprises Using Drones (UAVs)*
5. *Artem Artyukhov, Oleksandr Dluhopolskyi, Tetiana Vasylieva, Serhiy Lyeonov, Tetiana Dluhopolska, Halyna Tsikh. Local (University) Rankings and Quality of Education: Identification of Publication Activity Indicators*
6. *Artem Artyukhov, Vitaliy Omelyanenko. Methodical Aspects of Innovation Cooperation Processes Educations and R&D Effects Estimations*
7. *Mykhailo Vedernikov, Maria Zelena, Lesia Volianska-Savchuk, Anastasiia Danilkova, Oksana Chernushkina, Tetyana Glushko. Diagnostics of the Corporate Brand Image as an Effective Way to the Formation of the Enterprise's Positive PR-Factor*

S2: Information in Economy and Management. Block B

Date: **Wednesday 15th September**
13:00 – 14:00

Session Chairs: **Olena Liashenko, Zora Rihova**

Location: [Room 2](#)

1. *Dmytro Shushpanov, Tetiana Zheliuk, Alina Zhukovska, Lina Diakovich, Volodymyr Matsyk, Andrij Kotsur. Management of the Health Care System in the Conditions of Population Aging: Information, Analytical and Methodical Dimension*
2. *Ihor Oleksiv, Viktoriya Kharchuk, Roman Shulyar, Oleksandr Dluhopolskyi. Quality of Student Support at IT Educational Programmes: Case of Lviv Polytechnic National University*
3. *Oksana Mazurenok, Tetyana Korolyuk. Evaluation of the Effectiveness of the Application of Information and Communication Component in the Formation of Entrepreneurial Competence of Economists*
4. *Iuliia Gernego, Liudmyla Petrenko, Mykhailo Dyba. FinTech Innovative Effects in Ukraine*
5. *Juliy Boiko, Lesia Volianska-Savchuk, Natalia Bazaliyska, Maria Zelena. Smart Recruiting as a Modern Tool for HR Hiring in the Context of Business Informatization*
6. *Oleh Karyy, Ihor Kulyniak, Natalya Struchok, Liubov Halkiv, Solomiya Ohinok. Evaluation of the Tourist Attractiveness of Ukraine's Regions in the Conditions of Uncertainty Using Game Theory*
7. *Kateryna Kovtoniuk, Ellana Molchanova, Oleksandr Dluhopolskyi, Ganna Weigang, Oksana Piankova, Yuliya Demkiv. The Factors' Analysis of Influencing the Development of Digital Trade in the Leading Countries*

S2: Information in Economy and Management. Block C

Date: **Wednesday 15th September**

14:00 – 15:00

Session Chairs: **Olena Liashenko, Zora Rihova**

Location: [Room 2](#)

1. *Larysa Shaulska, Liudmyla Yurchyshena, Yurii Popovskyi. Using MS Power BI Tools in the University Management System to Deepen the Value Proposition*
2. *Lesia Marushchak, Olha Pavlykivska, Yana Khrapunova, Viktoria Kostiuk, Lyudmyla Berezovska. The Economy of Digitalization and Digital Transformation: Necessity and Payback*
3. *Olena Liashenko, Tetyana Kravets, Matvii Prokopenko. Analysis of Structural Shifts in Students' Behavioral Patterns During COVID-19*
4. *Liubov Halkiv, Ihor Kulyniak, Nataliia Shevchuk, Liudmyla Kucher, Tetiana Horbenko. Information and Technological Support of Enterprise Management: Diagnostics of Crisis Situations*
5. *Maryna Orap, Yaroslava Kalba, Nataliya Savelyuk. Economic Behavior as Information Processes: Peculiarities of Decision-Making Styles in Ukrainian Students*
6. *Maryna Semykina, Svitlana Luchyk, Liudmyla Zapirchenko, Anna Semykina, Hryhorii Savelenko, Vladyslav Sikoraka. Motivational Mechanism of Activation of Innovative Activity of Personnel and its Improvement*
7. *Miłosz Bies, Wiesława Gryncewicz, Agata Kozina, Marcin Hernes, Artur Rot, Ryszard Zygała. Reduction of Information Asymmetry in the Used Car Market Using the Random Forest Method*

S2: Information in Economy and Management. Block D

Date: **Thursday 16th September**

08:00 – 09:00

Session Chairs: **Igor Grebennik, Roman Pasichnyk**

Location: [Room 2](#)

1. *Nazar Podolchak, Natalia Tsygylyk, Volodymyr Martyniuk, Oksana Sokil. Predicting Human Resource Losses due to the COVID-19 Pandemic in the Context of Personnel Security of Organizations*
2. *Bohdan Melnyk, Ivan Dyyak, Rostyslav Mykhailyshyn, Nataliya Melnyk, Petro Stakhiv. Modeling the Dynamics of the Labor Market of Ukraine in a Pandemic COVID-19*
3. *Anna Vorontsova, Tetiana Vasylieva, Serhiy Lyeonov, Artem Artyukhov, Tetyana Mayboroda. Education Expenditures as a Factor in Bridging the Gap at the Level of Digitalization*

4. *Galyna Chornous, Lyudmyla Anisimova, Iryna Didenko, Kateryna Bilous. Mathematical Support for Human Resource Management in IT Projects*
5. *Iryna Strutynska, Halyna Kozbur, Lesia Dmytrotsa, Olena Sorokivska, Liliya Melnyk, Roman Grytseliak. Regarding to the Concept of Small and Medium-Sized Enterprises Digitalization in Ukraine: Problems and Solutions*
6. *Oksana Mykoliuk, Valentyna Bobrovnyk, Hanna Kucherova. Development of Digital Technologies - Strategic Perspectives and Priorities*
7. *Oleh Vatslavskyyi, Anna Ivanova. The Impact of Tax Burden on Economic Activity of Business Entities Under Conditions of Using Information Technology*

S2: Information in Economy and Management. Block E

Date: **Thursday 16th September**
09:00 – 10:00

Session Chairs: **Igor Grebennik, Roman Pasichnyk**

Location: [Room 2](#)

1. *Oleksandr Dluhopolskyi, Anastasiia Simakhova, Tetiana Zatonatska, Serhii Kozlovskyyi, Ihor Oleksiv, Jurijs Baltgailis. Potential of Virtual Reality in the Current Digital Society: Economic Perspectives*
2. *Lesia Buiak, Olga Gonchar, Larysa Dzhulii, Liudmyla Yemchuk, Larysa Skorobohata, Mykola Bondarenko. Economic and Mathematical Modeling in the Information and Intellectual Support of Management Decisions*
3. *Oleksandr Savych, Ellana Molchanova, Andriy Fedorchenko, Kateryna Kovtoniuk. Modeling of Key Marketing Parameters of Development of the EU Car Market and its Clusterization*
4. *Olexander Averchev, Kateryna Trukhachova, Hanna Zhosan. Development of a System of Effective Use of Enterprise Resources by Balancing the Effectiveness of Economic Activity in Terms of Resource Features*
5. *Olexandr Yemelyanov, Tetyana Petrushka, Lilia Lesyk, Anastasiya Symak, Olena Vovk. Assessment of Information Barriers to the Implementation of Energy Saving Projects at Ukrainian Enterprises*
6. *Olha Kovalchuk, Mykola Shynkaryk, Mariia Masonkova. Econometric Models for Estimating the Financial Effect of Cybercrimes*
7. *Serhii Spivak, Iryna Spivak, Svitlana Krepych, Ruslan Brukhanskyi, Uliana Tkach. Analysis of Tax Burden in Ukraine in the Context of European Integration*

S2: Information in Economy and Management. Block F

Date: **Thursday 16th September**
10:00 – 11:00

Session Chairs: **Olena Liashenko, Zora Rihova**

Location: [Room 2](#)

1. *Volodymyr Shvets, Nataliia Mishchuk, Vasil Galan, Bohdan Melnyk, Oksana Novostavska. Information and Methodological Support for Assessment of the Attractiveness of Land Assets of Ukraine*
2. *Sviatoslav Kniaz, Vira Kosovska, Oksana Shayda, Zoriana Novosad, Larysa Yaremko, Vasyl Fedyuk. Method of Selection of Indicators in the Context of Information and Analytical Support of Evaluation of Development of Foreign Economic Activity of Enterprises*
3. *Svitlana Pryima, Roman Vovk, Vasyl Pryimak, Volodymyr Vovk. Fuzzy Information Aggregation for the Assessment of Socio-Economic Processes in Regions of Ukraine*
4. *Svitlana Sviderska, Pavlo Kukhta. Evaluation Of Innovation Projects For Cosmetics Industry With Multi-Criteria Methods*
5. *Valentyna Lavrenenko, Hanna Yanhol, Anastasiya Stepanenko, Liudmyla Petrenko, Olga Mozgalli. Global Data Toolbox for Estimation Export-Import Potential based on World Steel Association Statistic*
6. *Valeriy Balan, Inna Tymchenko. Fuzzy Logic Framework for Assessing and Choising of Etreprise Strategies*
7. *Yanis Yansons, Andrii Semenchenko. The Mechanism of Information and Analytical Support for the E-Democracy Development*

S2: Information in Economy and Management. Block G

Date: **Thursday 16th September**
12:00 – 13:00

Session Chairs: **Olena Liashenko, Zora Rihova**

Location: [Room 2](#)

1. *Vasyl Brych, Volodymyr Manzhula, Nataliya Halysh, Nadiia Kalinichuk, Nadia Reznik, Iryna Hrynychak. Modeling the Dynamics of Living Standards Based on Factors of the Remuneration System*
2. *Vasyl Pryimak, Serhii Kasian, Olga Holubnyk. Qualitative Information in Evaluation of the Management Efficiency of Enterprises Marketing Activities*
3. *Viacheslav Dzhezdzhula, Iryna Yepifanova. Optimization of Energy Saving Potential of Industrial Enterprises*
4. *Vita Semaniuk, Volodymyr Shpak, Andriy Papinko. Estimation of the Information Efficiency of the Accounting System*
5. *Zora Řihová, Libor Dostalek. Information Management - the Basis for Fulfillment of People's Information Needs*
6. *Yuriy Petrushenko, Kateryna Onopriienko, Iryna Onopriienko, Volodymyr Onopriienko. Digital Learning for Adults in the Context of Education Market Development*

S2: Information in Economy and Management. Block H

Date: **Friday 17th September**
10:00 – 11:00

Session Chairs: **Igor Grebennik, Roman Pasichnyk**

Location: [Room 2](#)

1. *Valentyna Lavrenenko, Hanna Yanhol, Liudmyla Petrenko, Olexandr Shulha, Bohdan Tishkov. Digitization of Business Models of Metallurgical Enterprises to Ensure Efficiency in the Era of "Industry 4.0"*
2. *Vasyl Brych, Volodymyr Manzhula, Olena Borysiak, Mariia Bondarchuk, Ihor Aliksieiev, Nataliya Halysh. Factor Analysis of Financial and Economic Activities of Energy Enterprises of Ukraine*
3. *Vasyl Brych, Olena Borysiak, Nadiia Yushchenko, Mariia Bondarchuk, Ihor Aliksieiev, Nataliya Halysh. Factor Modeling of the Interaction of Agricultural Enterprises and Enterprises Producing Green Energy to Optimize the Biomass Supply Chain*
4. *Yulia Manachynska, Olena Moshkovska, Volodymyr Yevdoshchak, Svitlana Luchyk, Vasil Luchyk, Marharyta Luchyk. Actuarial Multidimensional Model of Ukrainian Agricultural Companies' Valuation*
5. *Yulia Romanyshyn, Viktoriia Bandura, Vitaliy Melnyk, Vasyl Sheketa, Volodymyr Pikh, Mykola Pasieka. Knowledge Transfer Routines in the Outlines of Web Based Education Management*
6. *Vitalina Babenko, Lesia Buiak, Oleg Pursky, Iryna Lutsenko, Iryna Perevozova, Boris Pokhodenko. The General Concept of Building Integrated Information Web-Systems of E-Commerce*

S3: Cyber Security. Block A

Date: **Wednesday 15th September**
10:00 – 11:00

Session Chairs: **Libor Dostálek, Ruslan Shevchuk**

Location: [Room 2](#)

1. *Antonina Farion-Melnyk, Viktoria Rozheliuk, Tetiana Slipchenko, Serhiy Banakh, Mykhailyna Farion, Oksana Bilan. Ransomware Attacks: Risks, Protection and Prevention Measures*
2. *Ashish Ashutosh, Armin Gerl. Access Control for a Connected Vehicle Ecosystem*
3. *Asma Aljohani, Anas Bushnag. An Intrusion Detection System Model in a Local Area Network using Different Machine Learning Classifiers.*
4. *Constantine Flissak, Volodymyr Burdin, Mykhailo Kasianchuk, Vladyslav Kolomiets, Bohdana Tychna, Sviatoslav Mazuryk. International Legal Instruments and Counteraction Mechanisms Against Information Violations and Cybercrime*
5. *Igor Yakymenko, Mykhailo Kasianchuk, Vasyl Yatskiv, Ruslan Shevchuk, Vasyl Koval, Solomiya Yatskiv. Sustainability and Time Complexity Estimation of Cryptographic Algorithms Main Operations on Elliptic Curves*

6. *Iryna Markina, Dmytro Diachkov, Nataliia Chernikova. Methodology of the Integral Evaluation of Enterprise Information Security Level*
7. *Mariia Pleskach, Viktor Krasnoshchok, Olena Orliuk, Valentyna Pleskach, Yaroslav Melnyk. Mechanisms for Encrypting Big Unstructured Data: Technical and Legal Aspects*

S3: Cyber Security. Block B

Date: **Thursday 16th September**
14:00 – 15:00

Session Chairs: **Libor Dostálek, Ruslan Shevchuk**

Location: [Room 2](#)

1. *Myroslav Kryshchanovych, Volodymyr Ortynskyi, Oleksandr Zakharyash, Natalya Maziy, Orest Krasivskyy. The Impact of Threats on the Cybersecurity System of Public Administration in the Context of the Development of Financial Technologies*
2. *Oleksandra Oliynychuk, Roman Oliynychuk, Nadya Savka, Olha Baranetska, Nadiia Moskaliuk, Maksym Sukhanov. Criminological Aspects of the Unauthorized Activities within the Cyber Space*
3. *Olga Karapetian, Liudmyla Budnyk, Iryna Blazhei, Yuri Pilyukov, Vitalii Pysanets, Nataliia Mazuryk. Researching of Cybercrimes: Modern Trends, Special Knowledge and Peculiarities of Engaging a Specialist*
4. *Olha Kovalchuk, Mariia Masonkova, Serhiy Banakh. The Dark Web Worldwide 2020: Anonymous vs Safety*
5. *Svitlana Mazepa, Serhiy Banakh, Andriy Melnyk, Sergiy Pugach, Oleksandra Yavorska, Natalia Golota. An Ontological Approach to Detecting Fake News in Online Media*
6. *Vlasta Svatá. Smart Home Governance*
7. *Zenovii-Mykhailo Zadorozhnyi, Volodymyr Muravskiy, Oleg Shevchuk. Influence of Organizational Factors and Forms of Accounting Outsourcing on Enterprise Cybersecurity*
8. *Zenovii-Mykhailo Zadorozhnyi, Volodymyr Muravskiy, Vasyl Muravskiy. Combined Outsourcing of Accounting and Cybersecurity Authorities*

S4: Specialized Information and Computer Systems. Block A

Date: **Thursday 16th September**
12:00 – 13:00

Session Chairs: **Anatoliy Melnyk, Vasyl Yatskiv**

Location: [Room 1](#)

1. *Anatoliy Melnyk. Parallel Conflict-Free Ordered Access Memory Device*
2. *Anatoliy Melnyk, Yurii Morozov, Petro Hupalo, Bohdan Havano. HealthyLungs: Mobile Applications for Round-the-Clock Remote Monitoring of Lung Function in Patients with COVID-19*

3. *Ivan Ostroumov, Nataliia Kuzmenko. Outliers Detection in Unmanned Aerial System Data*
4. *Oleg Ivashchuk, Ivan Ostroumov. Separation Minimums for Urban Air Mobility*
5. *Markian Nakonechnyi, Oleksandr Viter, Orest Ivakhiv, Roman Velgan, Yuriy Hirniak, Rostyslav Deyneka. Vehicle Speed Control System Simulation*
6. *Mykola Dyvak, Artur Rot, Vasyl Tymchyshyn, Stepan Valchyshyn, Frank Otoo, Marcin Hernes. Hardware Components of the Monitoring System of Soil and Groundwater Contamination by Harmful Emissions From Vehicles*
7. *Ferdinand von Tüllenburg, Jia Lei Du. The Effect of Time-Sensitive Networking Onto Performance and Robustness of Power Grid Protection*

S4: Specialized Information and Computer Systems. Block B

Date: **Thursday 16th September**
13:00 – 14:00

Session Chairs: **Anatoliy Melnyk, Vasyl Yatskiv**

Location: [Room 1](#)

1. *Nazar Adamchuk, Wolfgang Schlüter. Automatic Acceptor Generation based on EBNF Grammar Definition*
2. *Nicki Bodenschatz, Markus Eider, Andreas Berl. Challenges and Requirements of Electric Vehicle Fleet Charging at Company Parking Sites*
3. *Yelena Trofimova, Jan Fesl, Alexandru Mihnea Moucha. Performance Analysis of Neural Network Approach for Evaluation of Trust in Ad-Hoc Networks*
4. *Vasyl Martseniuk, Serhii Lupenko, Andrii Semenets, Dmytro Vakulenko, Nataliia Kravets, Nataliya Klymuk. On Data Mining Technique for Differentiation Condition of Football Players Using of Arterial Oscillography*
5. *Yaroslav Nykolaychuk, Natalia Vozna, Boris Krulikovskiy, Andriy Sydor, Ihor Pitukh, Lyubov Nykolaychuk. Special-Purpose Processors for Determining the Hamming Distance between Signals: Theoretical Basis, Methods, and Structures*
6. *Yaroslav Nykolaychuk, Natalia Vozna, Alina Davletova, Ihor Pitukh, Oleg Zastavnyy, Volodymyr Hryha. Microelectronic Structures of Arithmetic Logic Unit Components*
7. *Yaroslav Nykolaychuk, Taras Grynchychyn, Ihor Pitukh, Yaroslav Petrashchuk, Lyubov Nykolaychuk, Volodymyr Hryha. Promising Developments in Cyber Physical System Tools for Background Monitoring of Reserve Landscape*

S4: Specialized Information and Computer Systems. Block C

Date: **Thursday 16th September**
14:00 – 15:00

Session Chairs: **Mykola Nikitchenko, Natalia Shakhovska**

Location: [Room 1](#)

1. Nataliya Pavych, Volodymyr Zahurskii. *Software Architecture for Analyzing the Impact of News on the Stock Market*
2. Oleg Bisikalo, Viacheslav Kovtun, Olesia Boivan, Oksana Kovtun. *Method of Automated Transcribing of Speech Signals for Information Technology of Text-Dependent Authentication of a Person by Voice*
3. Oleksandr Panasiuk, Liudmila Akimova, Olena Kuznietsova, Igor Panasiuk. *Virtual Laboratories for Engineering Education*
4. Iryna Spivak, Andrii Bayurskii, Svitlana Krepych, Serhii Spivak. *Criterion for Evaluation the Level of Experts Competence During the Evaluation of a Software System Based on the Modified Interval Method of Expert Evaluation*
5. Ivan Dyyak, Bohdan Melnyk, Nataliya Melnyk, Stepan Trokhaniak, Tetiana Drakohrust, Iryna Svitlak. *Using an Internet Bot to Predict the Spread of COVID-19*
6. Mykola Dyyak, Andriy Melnyk, Natalia Dyyak, Olexandr Papa, Viktor Ostroverkhov, Zoryana Lobodina. *Intelligent Module of Information Processing for the Applied Software System to Provide Administrative Services*
7. Andriy Melnyk, Oksana Huhul, Ruslan Shevchuk, Iurii Shcherbiak, Yevgeniya Martsenyuk, Adrii Kovbasystyi. *Intelligent System of Analyzing the Structure of Web Resources*

S4: Specialized Information and Computer Systems. Block D

Date: **Friday 17th September**
09:00 – 10:30

Session Chairs: Mykola Nikitchenko, Natalia Shakhovska

Location: [Room 1](#)

1. Ruslan Shevchuk, Vitalii Mykytiuk, David Alfonso Miramontes, Andriy Yushko, Tetiana Yurchyshyn, Serhii Mokhun. *Software Service for Studying Words of the Ukrainian Language*
2. Ruslan Shevchuk, Ihor Kohut, Pavlo Chopyk, Iryna Madiudia, Andriy Melnyk. *Cyber-Physical Integrated Transport and Warehouse Logistics System for Courier Delivery Service*
3. Vasyl Melnyk, Olena Kuzmych, Nataliia Bahniuk, Nataliia Cherniashchuk, Liudmyla Hlynchuk, Oksana Mekush. *Effective Big Data Analysis Based on Sockets Application to Biomedical Data Processing*
4. Vladyslav Holubiev, Volodymyr Simishko. *Web Scraping and Text Mining of Ukrainian News Articles About Ecology*
5. Lesia Buiak, Oksana Hordei, Viktoriya Hurochkina, Bohdan Patsai, Ivan Nechyporuk, Artur Hurochkin. *Software Architecture of Automated Devices: Formation and Evaluation*
6. Yullia Franko, Natalia Porplytsya, Mykhailo Ozhha, Olha Potapchuk, Yuriy Franko. *Method and Software for Solving the Problem of Fuzzy Matching of Records in Relative Databases*
7. Andriy Pukas, Andriy Melnyk, Iryna Voytyuk, Andriy Yushko, Maksym Romanyuk, Lyudmyla Honchar. *Transactional Business Application Based on Microservice Architecture*

8. *Andriy Pukas, Andriy Melnyk, Iryna Voytyuk, Vitalii Smal, Volodymyr Fenovka, Tetiana Pylypiuk. Implementation of Service-Oriented Architecture for Static and Dynamic Objects Interval Modeling Software*
9. *Andriy Pukas, Mykola Dyvak, Andriy Melnyk, Iryna Voytyuk, Stepan Valchyshyn, Ihor Romanets. Software Architecture for Modeling the Interval Static and Dynamic Objects*
10. *Roman Vasko, Alla Korolyova, Yuliia Hryshchuk, Yan Kapranov. Transfer of Mathematical Formulas and Computer Algorithms into Macrocomparative Studies*
11. *Svitlana Kozyr, Volodymyr Sliesariiev. Algorithm for Selecting and Comparing of Situations Features of Intelligent Decision-Making Support System*

S5: Artificial Intelligence. Block A

Date: **Thursday 16th September**
13:00 – 14:00

Session Chairs: **Bodyanskiy Yevgeniy, Jan Fesl**

Location: [Room 2](#)

1. *Alina Albasova, Yevgeniy Bodyanskiy, Anastasiia Deineko, Iryna Pliss. 2-D Neural Network Based on M-neurons and its Learning*
2. *Alina Shafronenko, Yevgeniy Bodyanskiy, Irina Pliss, Klymova Irina. Online Credibilistic Fuzzy Clustering Method Based on Cauchy Density Distribution Function*
3. *Anastasia Kharchenko, Ievgen Fedorchenko, Tetiana Fedoronchak, Andrii Oliinyk, Alexander Stepanenko, Marharyta Saman. The Development of a Genetic Method for Predicting the Incidence of Diabetes*
4. *Andreas Fischer, Manuel Amesberger. Improving Image Tracing with Artificial Intelligence*
5. *Dmytro Kushnir, Ostap Ocherklevich, Yaroslav Paramud. Deep Neural Network Model for Text Semantic Analysis Based on Word Embeddings*
6. *Dmytro Kyrychuk, Andriy Segin. Training of a Convolutional Neural Network and Its Object Recognition Ability Depending on Illumination and Contrast of Images*
7. *Engy A. Aboulwafa, Doaa M. Shawky, Ahmed Farag Seddik. A Transfer Learning Approach for the Automatic Detection of Fatty Liver from Ultrasound Images*

S5: Artificial Intelligence. Block B

Date: **Friday 17th September**
09:00 – 10:00

Session Chairs: **Bodyanskiy Yevgeniy, Jan Fesl**

Location: [Room 2](#)

1. *Halyna Pidnebesna, Volodymyr Stepashko. Ontology-Based Design of Inductive Modeling Tools*

2. *Lara Saleh, Saleh Abu-Soud. Predicting Jordanian Job Satisfaction Using Artificial Neural Network and Decision Tree*
3. *Markus Eider, Nicki Bodenschatz, Andreas Berl. Evaluation of Machine Learning Algorithms for the Prediction of Simulated Company Parking Space Occupancy*
4. *Oksana Panchenko, Alla Klochko, Oleksandr Dluhopolskyi, Olexii Klochko, Viktoriia Shchurova, Arkadii Peker. Impact of the COVID-19 Pandemic on the Development of Artificial Intelligence: Challenges for the Human Rights*
5. *Serge Dolgikh. Native Concept Frameworks in Unsupervised Generative Learning*
6. *Sumitra Biswal. I Can Feel You: A Self-Trained Therapeutic Music Recommender System*
7. *Vladyslav Hamolia, Viktor Melnyk. A Survey of Machine Learning Methods and Applications in Electronic Design Automation*
8. *Volodymyr Sherstjuk, Maryna Zharikova, Irina Dorovskaja, Dmytro Chorny, Victor Gusev, Igor Sokol. 3D Fire Front Reconstruction Based on Multi-View Observation and Complex Uncertainty Model*

Program Committee Meeting

Friday, 17th September

08:00 – 09:00

Location: [Plenary Room](#)

Concluding the Conference

Friday, 17th September

11:00 – 12:00

Location: [Plenary Room](#)

Co-Chairs:

Prof. Mykola Dyvak (Ukraine), **Prof. Wolfgang Dorner** (Germany), **Prof. Libor Dostalek** (Czech Republic),

- Concluding reports of Section Chairs
- Conference Summary
- CONFERENCE CLOSING