



**TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV
(FACULTY OF INFORMATION TECHNOLOGY, FACULTY OF COMPUTER SCIENCE AND
CYBERNETICS)**

**NATIONAL TECHNICAL UNIVERSITY OF UKRAINE "IGOR SIKORSKY KYIV POLYTECHNIC
INSTITUTE"**

**VIKTOR GLUSHKOV INSTITUTE OF CYBERNETICS OF THE NAS OF UKRAINE
INSTITUTE OF INFORMATION TECHNOLOGY AND LEARNING TOOLS OF THE NAES OF
UKRAINE**

**INSTITUTE OF INFORMATION REGISTRATION PROBLEMS OF THE NAS OF UKRAINE
INSTITUTE OF SOFTWARE SYSTEMS OF THE NAS OF UKRAINE
THE COUNCIL OF YOUNG SCIENTISTS OF THE FACULTY OF COMPUTER SCIENCE AND
CYBERNETICS AND THE FACULTY OF INFORMATION TECHNOLOGY OF TARAS
SHEVCHENKO NATIONAL UNIVERSITY OF KYIV**

PROGRAM

VII International conference



IT&I



Information Technology and Interactions

December 02-04, 2020, Kyiv

The conference is planned to be held as video conference using the Zoom platform on 2-3 December, 2020 at **10 a.m.**

Link: <https://us02web.zoom.us/j/84590132243?pwd=Rkw3OHZRc0k3eHdUWHVTL2JTRmU3QT09>
Password: 940103

Contact details

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PROGRAM COMMITTEE



General Chairs

- **Prof. Anatoly Anisimov**, Taras Shevchenko National University of Kyiv, Ukraine
- **Prof. Vitaliy Snytyuk**, Taras Shevchenko National University of Kyiv, Ukraine

International Program Committee

- **Prof. Aldrich Chris**, Western Australian School of Mines, Australia
- **Prof. Andreas Pester**, Fachhochschule Kärnten, Austria
- **Prof. Frederic Mallet**, Université Côte d'Azur, France
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- **Prof. Sándor Bozóki**, Computer and Automation Research Institute Hungarian Academy of Sciences, Hungary
- **Prof. Vitaliy Tsyganok**, Institute for Information Recording of NAS of Ukraine, Ukraine
- **Prof. Vladimir Vovk**, Royal Holloway, University of London, United Kingdom



Organizing committee

Anatoly Anisimov	–	Correspondent-member of National Academy of Sciences of Ukraine, Doctor of Physical and Mathematical Science, Professor, Dean of the Faculty of Computer Science and Cybernetics.
Vitaliy Snytyuk	–	Doctor of Technical Science, Professor, Dean of the Faculty of Information Technology.
Anatolii Pashko	–	Doctor of Physical and Mathematical Science, Professor, Professor of the Department of Theoretical Cybernetics of the Faculty of Computer Science and Cybernetics.
Andrii Biloshchytskyi	–	Doctor of Technical Science, Professor, Head of the Department of Information Systems and Technology of the Faculty of Information Technology.
Kateryna Kolesnikova	–	Doctor of Technical Sciences, Professor, Professor of the Department of Technologies Management of the Faculty of Information Technology.
Mykola Nikitchenko	–	Doctor of Physical and Mathematical Science, Professor, Head of the Department of Theory and Technology of Programming of the Faculty of Computer Science and Cybernetics.
Nataliia Lukova-Chuiko	–	Doctor of Technical Science, Associate Professor, Head of the Department of Cybersecurity and Information Protection of the Faculty of Information Technology.
Oleh Ilarionov	–	Candidate of Technical Sciences, Associate Professor, Head of the Department of Intellectual Technologies of the Faculty of Information Technology.

Oleksandr Marchenko	–	Doctor of Physical and Mathematical Science, Professor, Professor of the Department of Mathematical Informatics of the Faculty of Computer Science and Cybernetics.
Oleksii Bychkov	–	Doctor of Technical Science, Associate professor, Head of the Department of Program Systems and Technology of the Faculty of Information Technology.
Serhii Toliupa	–	Doctor of Technical Sciences, Professor, Professor of the Department of Cybersecurity and Information Protection of the Faculty of Information Technology.
Taras Panchenko	–	Candidate of Physical and Mathematical Science, Associate Professor, Associate Professor of the Department of Theory and Technology of Programming of the Faculty of Computer Science and Cybernetics.
Valentyna Pleskach	–	Doctor of Economics, Candidate of Technical Sciences, Professor, Head of the Department of Applied Information System of the Faculty of Information Technology.
Viktor Morozov	–	Candidate of Technical Sciences, Professor, Head of the Department of Technologies Management of the Faculty of Information Technology.
Volodymyr Zaslavsky	–	Doctor of Technical Science, Professor, Professor of the Department of Mathematical Informatics of the Faculty of Computer Science and Cybernetics.
Yuri Krak	–	Doctor of Physical and Mathematical Science, Professor, Head of the Department of Theoretical Cybernetics of the Faculty of Computer Science and Cybernetics.
Yurii Samokhvalov	–	Doctor of Technical Sciences, Professor, Professor of the Department of Intellectual Technologies of the Faculty of Information Technology.
Yurii Kravchenko	–	Doctor of Technical Sciences, Professor, Head of the Department of Network and Internet Technologies of the Faculty of Information Technology.

Secretariat

Anastasiia Dubnytska	–	(specialist, FIT, Taras Shevchenko KNU)
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Andrii Fesenko	–	(PhD in Technical Science, Head of the council of young scientists, FIT, Taras Shevchenko KNU)
Andriy Dudnik	–	(Doctor of Science, Ass. Prof., FIT, Taras Shevchenko KNU)
Dmytro Krukovets	–	(PhD student, FCSC, Taras Shevchenko KNU)
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Nataliia Oberemok	–	(PhD in Technical Science, Ass. Prof., FIT, Taras Shevchenko KNU)
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Yuliia Shevchuk	–	(PhD in Physical and Mathematical Science, Head of the council of young scientists, FCSC, Taras Shevchenko KNU)



CONFERENCE TIMETABLE



Wednesday, December 02, 2020

Plenary sessions

Link: <https://us02web.zoom.us/j/84590132243?pwd=Rkw3OHZRc0k3eHdUWHVTL2JTRmU3QT09>

9:30 – 10:00	Registration of conference participants
10:00 – 11:30	<i>Opening of the Conference</i>
11:30 – 11:45	<i>Break</i>
11:45 – 13:00	Plenary sessions
14:00 – 17:00	Parallel sessions

Section 1. Artificial Intelligence Technologies

Link: <https://us02web.zoom.us/j/84590132243?pwd=Rkw3OHZRc0k3eHdUWHVTL2JTRmU3QT09>

Section 2. Cyberspace Protection Technologies

Link: <https://us02web.zoom.us/j/88503952712?pwd=MkpKN2dta05zMksrZ0tsSnk3NW9uQT09>

Passcode: 110449

Section 3. Data Analytics &

Section 4. Digital Project Management Technologies

Link: <https://us02web.zoom.us/j/4948604324?pwd=QXZ1OHdoRlkyZ203aEJsQ0w1QzB2Zz09>

Passcode: 157969

Section 5. E-commerce, E-government and E-learning Technologies

Link: <https://us02web.zoom.us/j/89193146515?pwd=OTVocjZFZU9kMmNwNDBKYmdlIc29yZz09>

Meeting ID: 891 9314 6515 Passcode: 714162

Section 6. Mathematical Foundations of Information Technology &

Section 7. Network and Internet Technologies

Link: <https://us02web.zoom.us/j/85727511958>



CONFERENCE PROGRAMME



02

Friday

DECEMBER

OPENING OF THE CONFERENCE (10:00 – 11:05) Moderator A.V. Anisimov
Welcome speech (10:00 – 10:10): Prof. Anatoly Anisimov , Taras Shevchenko National University of Kyiv, Ukraine
Welcome speech (10:10 – 10:20): Prof. Vitaliy Snytyuk , Taras Shevchenko National University of Kyiv, Ukraine
Welcome speech (10:20 – 10:30): Prof. Vladimir Vovk , Royal Holloway, University of London, United Kingdom
Keynote Speakers report (10:30 – 11:00): Prof. Vladimir Vovk , Royal Holloway, University of London, United Kingdom
ORAL PLENARY SESSIONS (11:05 – 11:30)
(11:00 – 11:20) Dmitriy Klyushin . Randomness: Old and New Ideas
(11:20 – 11:40) Nataliia Morze and Rusudan Makhachashvili . Digital Competence in E-Governance Education: A Survey Study
BREAK (11:40 – 12:00)
ORAL PLENARY SESSIONS (12:00 – 13:00) Moderator V.Y. Snytyuk
(12:00 – 12:20) Dmytro Orlovskyi and Andrii Kopp . A Business Intelligence Dashboard Design Approach to Improve Data Analytics and Decision Making
(12:20 – 12:40) Nikolay Kiktev, Taras Lendiel and Volodymyr Osypenko Application of the Internet of Things technology in the automation of the production of compound feed and premixes
(12:40 – 13:00) Dmytro Lukianov, Viktor Gogunskii, Oleksii Kolesnikov and Kateryna Kolesnikova . ICB 4.0 IPMA competency model from the Theory of Graphs point of view
(13:00 – 13:20) Yurii Kravchenko, Olesia Afanasyeva, Maksym Tyshchenko and Serhii Mykus . INTELLECTUALISATION OF DECISION SUPPORT SYSTEMS FOR COMPUTER NETWORKS: PRODUCTION-LOGICAL F-INFERENCE
LUNCH BREAK (13:20 – 14:00)
ORAL PARALLEL SESSIONS (14:00 – 17:00)

Tracks 1: Artificial Intelligence Technologies		
Link: https://us02web.zoom.us/j/84590132243?pwd=Rkw3OHZRc0k3eHdUWHVTL2JTRmU3QT09 Password: 940103		
Head: Oleksandr Marchenko, Yurii Samokhvalov Secretary: George Gaina		
1.	(14:00 – 14:15) Roman Ponomarenko	Systems for checking and testing the quality of knowledge based on fuzzy inference
2.	(14:15 – 14:30) Serge Dolgikh and Oksana Mulesa	Covid-19 Epidemiological Factor Analysis: Identifying Principal Factors with Machine Learning
3.	(14:30 – 14:45) Anastasiia Vavilenkova	Regularity of Context Units Identification in Electronic Text Documents
4.	(14:45 – 15:00) Serhiy Semerikov, Hanna Kucherova, Dmytro Ocheretin and Vita Los	Neural network analytics and forecasting the country's business climate in conditions of the coronavirus disease (COVID-19)
5.	(15:00 – 15:15) Kyrylo Kadomskyi	Evaluating Deep Learning models for anomaly detection in an industrial transporting system
BREAK (15:15 – 15:30)		
6.	(15:30 – 15:45) Stepan Bilan	Identification of Rolling Stock of Railways Based on Multi-Projection Image Processing Methods
7.	(15:45 – 16:00) Nataliia Dakhno, Yuri Kravchenko, Leshchenko Olga and Tolstokorova Anastasiia	Machine learning algorithms for predicting the results of COVID-19 coronavirus infection
8.	(15:45 – 16:00) Volodymyr Kovenko and Ilona Bogach	A Comprehensive Study of Autoencoders' Applications Related to Images
9.	(16:00 – 16:15) Samokhvalov Yuri.	Automatic Construction of (L-R)-functions by Experimental Data
10.	(16:15 – 16:30) Ievgen Fedorchenko, Andrii Oliinyk, Alexander Stepanenko, Anastasia Kharchenko	Development of the Genetic Algorithm for Technical Diagnostics
11.	(16:15 – 16:30) Yuliia Hlavcheva, Maksym Glavchev, Victoria Bobicev and Olga Kanishcheva	Language-Independent Features for Authorship Attribution on Ukrainian Texts

**Tracks 2:
Cyberspace Protection Technologies**

Link:

Link: <https://us02web.zoom.us/j/88503952712?pwd=MkpKN2dta05zMksrZ0tsSnk3NW9uQT09>

Passcode: 110449

Head: Serhii Toliupa

Secretary: Volodymyr Nakonechnyi

1	(14:00 – 14:15) Tetiana Babenko, Hryhorii Hnatienko and Vira Vialkova	Modeling of the integrated quality assessment system of the information security management system
2	(14:15 – 14:30) Nataliia Lukova-Chuiko, Andriy Fesenko, Hanna Papirna and Sergiy Gnatyuk	Threat Hunting as a method of protection against cyber threats
3	(14:30 – 14:45) Bohdan Koval and Iulia Khlevna	Fraud detection technology in payment systems
4	(14:45 – 15:00) Tatiana Neskoro dieva and Eugene Fedorov	Automatic analysis method of audit data based on neural network mapping
5	(15:00 – 15:15) Valentyn Sobchuk, Yuliya Olimpiyeva, Andrii Musienko and Andrii Sobchuk	Ensuring the Properties of Functional Stability of Manufacturing Processes Based on the Application of Neural Networks

BREAK (15:15 – 15:30)

6	(15:30 – 15:45) Serhii Toliupa, Volodymyr Nakonechnyi, Maxym Kotov and Valeriia Solodovnyk	Signals encryption in wireless data input devices
7	(15:30 – 15:45) Oleksandr Puchkov, Igor Subach, Artem Zhylin and Vitaliy Tsyganok	Criteria for Classification of Cyber-training and Analysis of Organizational and Technical Platforms for Their Conduct

**Tracks 3:
Data Analytics**

**Tracks 4:
Digital Project Management
Technologies**

Link:

<https://us02web.zoom.us/j/4948604324?pwd=QXZ1OHdoRlkyZ203aEJsQ0w1QzB2Zz09>

Passcode: 157969

Head: Kateryna Kolesnikova, Volodymyr Zaslavsky

Secretary: Olha Mezentsseva

Section head: Viktor Morozov

Secretary: Nataliia Oberemok

1	(14:00 – 14:15) Hlib Horban, Ihor Kandyba,	Principles of Searching for a Variety of Types of Associative Rules in OLAP-cubes
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	Mykhailo Dvoretzkyi and Anzhela Boiko	
2	(14:15 – 14:30) Mykhailo Dvoretzkyi, Svitlana Dvoretzka, Hlib Horban and Yuriy Nezdoliy	Optimization of the Database Structure of a Distributed Corporate Information System Node Using the Analytic Hierarchy Process
3	(14:30 – 14:45) Peter Nikolyuk, Tatiana Neskorodieva, Eugen Fedorov and Esta Chioma	Intellectual algorithm implementation for megacity traffic management
4	(14:45 – 15:00) Yaroslav Linder, Maksym Veres and Kateryna Kuzminova	Modeling and Prediction of COVID-19 Using Hybrid Dynamic Model Based on SEIRD with ARIMA corrections
5	(15:00 – 15:15) Volodymyr Polishchuk, Mykola Malyar, Miroslav Kelemen and Andriy Polishchuk	The technology for determining the level of process control in complex systems
BREAK (15:15 – 15:30)		
6	(15:30 – 15:45) Sergiy Rozhkov, Kostyantyn Kondrashov, Oksana Tereshchenkova and Maryna Falenkova	Informational expert system for minimizing the time for searching of failures of ship electrical equipment
7	(15:45 – 16:00) Yuliia Hlavcheva, Maksym Glavchev, Victoria Bobicev and Olga Kanishcheva	Language-Independent Features for Authorship Attribution on Ukrainian Texts
8	(16:00 – 16:15) Hrygorii Hnatiienko, Vitaliy Snytyuk, Nataliia Tmienova and Oleksii Voloshyn	Determining the effectiveness of scientific research of universities staff
9	(16:15 – 16:30) Igor Kovalenko, Alyona Shved and Yevhen Davydenko	A Technique for Structuring of Group Expert Judgments Formed Under Complex Forms of Ignorance
10	(16:30 – 16:45) Serhiy Shtovba and Mykola Petrychko	An Informetric Assessment of Various Research Fields Interactions on Base of Categorized Papers in Dimensions
12	(16:45 – 17:00) Dmytro Lukianov, Oleg Radyuk, Hanna Charniauskaya and Iryna Basinskaya	The use of graph theory in the implementation of psychodiagnostic projects on the example of researching the leadership qualities of participants in software development teams
13	(17:00 – 17:15) Ivan Oberemok and Nataliia Oberemok	Priority of values of project stakeholders

Tracks 5:
E-commerce, E-government and E-learning Technologies

Link:

<https://us02web.zoom.us/j/89193146515?pwd=OTVocjZFZU9kMmNwNDBKYmdlc29yZz09>

Meeting ID: 891 9314 6515 Passcode: 714162

Head: Valentyna Pleskach, Taras Panchenko

Secretary: Viktoriia Mironova

1	(14:00 – 14:15) Taras Chaikivskyi, Dmytro Shevchenko and Vitaliy Yakovyna	Real-Time Simulation of Alcohol Dehydration Process as a Virtual Laboratory Work
2	(14:15 – 14:30) Alexander Provotar, Maksym Veres and Maksym Samoilenko	Using educational IoT system
3	(14:30 – 14:45) Anna Selivanova, Oleg Pursky, Yurii Yurchenko, Hanna Samoylenko and Tatiana Dubovyk	Agent Modeling of Online Store Activities
4	(14:45 – 15:00) Mariia Pleskach, Valentyna Pleskach, Inna Zaiarna and Oleh Zaiarnyi	Modern Digital Challenges and Technologies in the Educational Environment of Higher Education Institutions
5	(15:00 – 15:15) Victoriia Mironova, Mykola Pyroh and Iryna Harko	Methodology of building Agile-education processes in higher education institutions
BREAK (15:15 – 15:30)		
6	(15:30 – 15:45) Galyna Chornous and Yaroslava Horbunova	Modeling and forecasting dynamic factors of pricing in e-commerce
7	(15:45 – 16:00) Vitaliy Kobets, Vira Liubchenko, Ihor Popovych and Svitlana Koval	Institutional Aspects of Integrated Quality Assurance of Study Programs at HEI Using ICT
8	(16:00 – 16:15) Ilona Revenchuk, Bohdan Sus, Oleksandr Bauzha and Sergiy Zagorodnyuk	Virtual laboratory as custom e-Learning implementation and design solution
9	(16:15 – 16:30) Nataliia Yehorchenkova, Oleksii Yehorchenkov and Iurii Tesla	Reflex Model of Online Learning
10	(16:30 – 16:45) Alexander Mytnyk, Sergiy Syrota, Viacheslav Liskin and Taras Olefirenko	Creating of an educational enviroment using ontology-based approach to e-learning systems

Tracks 6: Mathematical Foundations of Information Technology		Tracks 7: Network and Internet Technologies
Link: https://us02web.zoom.us/j/85727511958		
Head: Oleksii Bychkov, Mykola Nikitchenko Secretary: Olena Grinenko		Head: Yurii Kravchenko Secretary: Andriy Dudnik
1	(14:00 – 14:15) Borys Kredentser, Dmytro Mogylevych, Iryna Kononova and Vadym Mohylevych	Analytical Model with Interruption of Service of Short-term Objects with Temporary Reservation
2	(14:15 – 14:30) Yuliia Boiko, Valerii Kozlovskiy, Oleksandr Turovsky and Yurii Balaniuk	Minimization of phase error dispersion in closed type phase synchronization systems in carrier frequency tracking mode
3	(14:30 – 14:45) Svitlana Popereshnyak and Anastasiya Vecherkovskaya	Reserch and modeling of filter elements production process control system using Petri nets
4	(14:45 – 15:00) Andrii Khrinenko and George Vostrov	Mathematical models of pseudorandom processes behavior for nonlinear dynamical systems
5	(15:00 – 15:15) Alexander Lyaletski and Alexandre Lyaletsky	Evidence Algorithm Approach to Automated Theorem Proving and SAD Systems
BREAK (15:15 – 15:30)		
6	(15:30 – 15:45) Vladimir Semenov and Yana Vedel	Convergence of Adaptive Methods for Equilibrium Problems in Hadamard spaces
7	(15:45 – 16:00) Snezhana Petrova	Advantages and disadvantages of how to store data from smart home devices
8	(16:00 – 16:15) Olena Liashenko, Tetyana Kravets and Yevhenii Repetskyi	Neural networks in application to cryptocurrency exchange modeling
9	(16:00 – 16:15) Oleksii Bychkov, Oleksii Ivanchenko, Kateryna Merkulova and Yelyzaveta Zhabska	Mathematical methods for information technology of biometric identification in conditions of incomplete data
10	(16:00 – 16:15) Oksana Tereshchenkova and Kostyantyn Kondrashov	Automation of the process of troubleshooting of ship systems
11	(16:15 – 16:30) Andriy Dudnik, Volodymyr Kvasnikov, Olexander Trush and Tetyana Domkiv	Development of distributed multi-segment wireless networks for determining external situations