Programme of the 4th International Workshop on Intelligent Information Technologies & Systems of Information Security (IntelITSIS-2023)

Khmelnytskyi, Ukraine, March 22 – 24, 2023

Time regarding the Kyiv

Countries which represent authors	Time in countries regarding the time of Ukraine
United States of America	- 6
Canada	- 6
United Kingdom	- 2
Poland	- 1
Czech Republic	- 1
Slovakia	- 1
Germany	- 1
Austria	- 1
Switzerland	- 1
Algeria	- 1
Egypt	The same
Estonia	The same
Israel	The same
Kyrgyzstan	+ 4
Kazakhstan	+ 4

IMPORTANT!!! All Ukrainian participants of Workshop should be connected to all sessions from shelters in order to ensure uninterrupted work during air alarms! We will not stop the Workshop's sessions in case of an air alarm!

All workshop participants should have a backup connection option (charged mobile phone with a connected mobile internet) to ensure uninterrupted operation in case of emergencies – power outages, etc.

Timetable of the Workshop

Time (Kyiv)	March 22th 2023	March 23th 2023	March 24th 2023
9.00		Section Session 1 Intelligent Information Technologies	Section Session 2 Systems of Information Security
11.00		Coffee Break	Coffee Break
11.30		Section Session 2 Systems of Information Security	Section Session 1 Intelligent Information Technologies
13.00		Lunch	Lunch
14.00	**Welcome & Plenary Session**	Section Session 1 Intelligent Information Technologies	Section Session 3 Computer systems and networks
15.30	Coffee Break	Coffee Break	Coffee Break
15.45	**Plenary Session**	Section Session 3 Computer systems and networks	**Plenary Session** Awards and Close Ceremony

Presentation timing:
Invited presentations – 20-25 minutes + 5 minutes Q&A;
Session presentations – 7-10 minutes + 3-5 minutes Q&A.
Each session includes additional 10 minutes for discussion.

Testing of Connection:
March 22th, 2023, 13.45-14.00 (1.45 PM – 02.00 PM), Kyiv time
March 23th, 2023, 08.45-09.00 (8.45 AM – 09.00 AM), Kyiv time
March 24th, 2023, 08.45-09.00 (8.45 AM – 09.00 AM), Kyiv time

Zoom links:

Plenary session	**https://us02web.zoom.us/j/89579767497?pwd=bWFFYThQbm1VSlM3SVdnRDNOampBZz09** Meeting ID: 895 7976 7497 Password: 123456
Session 1 Intelligent Information Technologies	**https://us02web.zoom.us/j/89579767497?pwd=bWFFYThQbm1VSlM3SVdnRDNOampBZz09** Meeting ID: 895 7976 7497 Password: 123456
Session 2 Systems of Information Security	**https://us02web.zoom.us/j/89579767497?pwd=bWFFYThQbm1VSlM3SVdnRDNOampBZz09** Meeting ID: 895 7976 7497 Password: 123456
Session 3 Computer systems and networks	**https://us02web.zoom.us/j/89579767497?pwd=bWFFYThQbm1VSlM3SVdnRDNOampBZz09** Meeting ID: 895 7976 7497 Password: 123456

Plenary Session Schedule

Plenary sessions	Invited presentations
Welcome & Plenary Session **March 22th 2023** **14.00-17.45** Moderators: Tetiana Hovorushchenko, Sergii Lysenko	**14.00-14.20** *Greetings from the IntelITSIS Organizers:* **Tetiana Hovorushchenko**, Khmelnytskyi National University, Ukraine (General Chair of the Workshop) **Oleg Syniuk**, Vice-Rector of Khmelnytskyi National University, Ukraine **Sergii Lysenko**, Khmelnytskyi National University, Ukraine (International Program Committee Chair) **Yelyzaveta Hnatchuk**, Khmelnytskyi National University, Ukraine (Organizing Committee Chair) **14.20-14.30** *Trends of the IntelITSIS-2023* **Tetiana Hovorushchenko**, Khmelnytskyi National University, Ukraine **14.30-15.00** *Towards Intelligent Technology for Error Detection and Quality Evaluation of Business Process Models* **Andrii Kopp and Dmytro Orlovskyi**, National Technical University "Kharkiv Polytechnic Institute" (Ukraine) **15.00-15.30** *Collaborative Decision-Making Models in Flight Emergency "Landing Gear Failure on Takeoff"* **Tetiana Shmelova, Yuliya Sikirda, Maxim Yatsko, Illia Marienkov and Yelyzaveta Sahun**, National Aviation University (Ukraine), Flight Academy of the National Aviation University (Ukraine) **15.30-15.45** *Coffee Break* **15.45-16.15** *Method for Creating a Computer Agent Based on the Jordan-Elman Neural Network for Supply Chains* **Eugene Fedorov, Olga Nechyporenko and Tetiana Neskorodieva**, Cherkasy State Technological University (Ukraine), Vasyl' Stus Donetsk National University (Ukraine)

	16.15-16.45 *Issues of formalization of risk management process in software design* **Liudmyla Bilousiva, Liudmyla Gryzun, Natalia Zhytienova and Valentyna Pikalova**, Academy of Cognitive and Natural Sciences (Ukraine), Simon Kuznets Kharkiv National University of Economics (Ukraine), H. S. Skovoroda Kharkiv National Pedagogical University (Ukraine), National Technical University "Kharkiv Polythechnic Institute" (Ukraine) **16.45-17.15** *Analysis of quality indicators of digital images obtained by different photo-recording systems* **Bohdan Kovalskyi, Myroslava Dubnevych, Tetyana Holubnyk, Lyudmyla Mayik, Zoryana Selmenska,** Ukrainian Academy of Printing (Ukraine) **17.15-17.45** *Intelligent Neural Networks Models for the Technological Separation Processes* **Andrey Kupin, Dmytro Zubov, Yuriy Osadchuk, Rodion Ivchenko and Vadym Saiapin**, Kryvyi Rih National University (Ukraine), University of Central Asia (Kyrgyzstan)
Awards and Close Ceremony **March 24th 2023** **15.45-16.15** Moderators: Tetiana Hovorushchenko, Sergii Lysenko	**15.45-16.15** *Awards and Close Ceremony*

Section Sessions Schedule

Section Sessions	Presentations
Section Session 1 Intelligent Information Technologies **March 23th 2023 09.00-11.00** Moderators: **Tetiana Hovorushchenko**, Yelyzaveta Hnatchuk, Olga Pavlova	Lyudmyla Yasinska-Damri, Sergii Babichev, Aleksander Spivakovsky and Oleksandr Lemeshchuk *Formation and Analysis of Gene Expression Data Based on the Joint Use of Data Mining and Machine Learning Techniques* Ilona Dumanska, Olga Pavlova and Houda El Bouhissi *Information Technology for Logistics Infrastructure based on Digital Visualization and WEB-cartography under the Conditions of Military Conflicts* Volodymyr Motyka, Mariia Nasalska, Yaroslav Stepaniak, Victoria Vysotska and Myroslava Bublyk *Radar Target Recognition Based on Machine Learning* Katerina Zubkova, Volodymyr Sherstjuk *Neuro-Fuzzy Control of Spray Drying Food Machine* Taras Chaikivskyi, Bohdan Sus, Sergiy Zagorodnyuk and Oleksandr Bauzha *Data Processing of Ethylbenzene Oxidation Process using the Artificial Neural Networks* Kira Bobrovnikova, Ivan Hurman, Olha Hovorushchenko, Olha Horbatiuk *Information Technology for Predicting the Course of Climacteric Syndrome* Tetiana Hovorushchenko, Denys Kvasnitskyi, Olha Hovorushchenko, Iryna Zasornova and Artem Boyarchuk *Mobile Information System for Determining the Level of Creatine in Food Products* David Arie, Roman Kvyetnyy, Oleh Bisikalo, Yuriy Bunyak *Information model of the UnispherTM platform for creation and using the smart content for education*
Section Session 1 Intelligent Information Technologies **March 23th 2023 14.00-15.30** Moderators: Tetiana Hovorushchenko, **Yelyzaveta Hnatchuk**, Olga Pavlova	Bohdan Molodets, Volodymyr Hnatushenko, Daniil Boldyrieva, Tetiana Bulan *Information System of Air Quality Assessment Based of Ground Stations and Meteorological Data Monitoring* Sergii Lysenko, Anatoliy Sachenko, Piotr Gaj, Oleksandr Bokhonko and Volodymyr Vorobiov *Method for Humanitarian Demining of the Territory Using Machine Learning* Serhii Kondratiuk, Danylo Hartvih, Iurii Krak, Olexander Barmak and Vladislav Kuznetsov *Deep Learning Models for Ukrainian Text to Speech Synthesis*

	Ivan Azarov, Sergiy Gnatyuk, Marek Aleksander, Ilya Azarov and Assel Mukasheva *Real-time ML algorithms for the detection of dangerous objects in critical infrastructures* Oleksii Kovalchuk, Pavlo Radiuk, Oleksander Barmak, Sergii Petrovskyi and Iurii Krak *A Novel Feature Vector for ECG Classification using Deep Learning* Ievgen Fedorchenko, Andrii Oliinyk, Aleksandr Stepanenko, Maksym Chornobuk and Tetiana Fedoronchak *Modified convolutional neural network for pattern recognition of malaria cells* Lesia Mochurad, Vitalii Savchyn, Oleksandr Kravchenko *Recognition of Explosive Devices Based on the Detectors Signal Using Machine Learning Methods* Serhii Lupenko, Oleksandra Orobchuk, Ihor Kateryniuk *Development of the Structure of the Ontooriented Database of Information System «Image Therapist»*
Section Session 1 Intelligent Information Technologies **March 24th 2023** **11.30-13.00** Moderators: Tetiana Hovorushchenko, Yelyzaveta Hnatchuk, **Olga Pavlova**	Oleksandr Tymchenko, Orest Khamula, Svitlana Vasiuta, Olha Sosnovska and Nikita Tarasov *Identification of Factors Influencing the Design Processes in Startups* Oleksandr Tymchenko, Bohdana Havrysh, Orest Khamula and Natalya Kustra *Research of Speech Signals Backgrounds of the Ukrainian Language Using the Wavelet Transform* Oksana Kovtun, Viacheslav Kovtun *A method of language units classification oriented to automated transcribing* Vsevolod Senkivskyy, Tetyana Holubnyk, Bohdana Havrysh and Nataliia Snihur *Design and Optimization of Multi-Page Publications for High-Quality Rendering* Kateryna Yalova, Kseniia Yashyna and Abdel-Badeeh M. Salem *Natural Language Interface to Database Approach in the Task of Relational Databases Design* Volodymyr Mayik, Lyudmyla Mayik, Kseniya Bazylyuk, Myroslava Dubnevych and Volodymyr Lytvynenko *Modeling of the Braille Font Elements Creation Process Using Regression Analysis* Olga Pavlova, Andriy Bashta, Mariia Kostiuk and Houda El Bouhissi *Technology and Scenarios for Objects 3D Models visualization using Augmented Reality* Myroslava Bublyk, Orest Slava, Victoria Vysotska, Liubov Kolyasa and Olha Vlasenko *World Universities Strategic Analysis Based on Data from the QS World University Rankings*

Section Sessions	Presentations
Section Session 2 Systems of Information Security **March 23th 2023** **11.30-13.00** Moderators: Oleh Savenko, **Sergii Lysenko**	Olha Kovalchuk, Serhiy Banakh, Mykhailo Kasianchuk, Nadiia Moskaliuk and Valerii Kaniuka *Associative Rule Mining for the Assessment of the Risk of Recidivism* Vasyl Yatskiv, Taras Tsavolyk, Nataliya Yatskiv, Vasyl Koval, Stepan Ivasiev *Algorithm and data encoding/decoding devices based on two-dimensional modular correction codes* Denys Liubinetskyi, Antonina Kashtalian, Tomas Sochor, Andrii Selskyi, Olexandr Klein *Distributed System for Predicting Malicious Activity in Computer Networks* Anastasiia Nicheporuk, Andrii Nicheporuk, Andrzej Kwiecien, Serhii Posonskyi and Galina Radelchuk *A Data Collection System from the RPL Routing Protocol for Detecting Distributed Denial of Service Attacks in IoT Networks* Mykhailo Kasianchuk, Ihor Yakymenko, Solomiya Yatskiv, Oksana Gomotiuk and Lesia Bilovus *The Method of Joint Execution of the Basic Operations of the Rabin Cryptosystem* Oleg Savenko, Mykola Stetsyuk, Yuriy Stetsyuk, Antonina Kashtalian, Bohdan Savenko *The Hardware and Software Part of a Distributed Decentralized Systems Detection Malicious Software*
Section Session 2 Systems of Information Security **March 24th 2023** **09.00-11.00** Moderators: Oleh Savenko, **Sergii Lysenko**	Anatoliy Melnyk, Jean-Yves Le Boudec, Yurii Morozov, Bohdan Havano and Petro Hupalo *Protection of data transmission in remote monitoring tools by anonymization* Bohdan Durnyak, Petro Shepita , Lyubov Tupychak *Protection of the Information System of the Printing Enterprise from Cyber Threats* Pavlo Rehida, Tomas Sochor, Valeriy Martynyuk, Olha Tarasova and Viktoriia Orlenko *A distributed malware detection model based on sandbox technology* Nataliia Petliak, Yurii Klots, Vira Titova, Viktor Cheshun, Artem Boyarchuk *Signature-based approach to detecting malicious outgoing traffic* Liubomyr Sikora, Nataliia Lysa, Rostyslav Tkachuk and Olga Fedevych *Informational and procedural description of an energy-active control object behavior under active threats conditions* Aasso Ziro, Sergiy Gnatyuk and Shara Toibayeva *Improved Method for Penetration Testing of Web Applications* Dmytro Denysiuk, Olena Geidarova, Mariia Kapustian, Sergii Lysenko, Viktoriia Orlenko *Blockchain-based Deep Learning Algorithm for Detecting Malware*

Section Sessions	Presentations
Section Session 3 Computer systems and networks **March 23th 2023** 15.45-17.15 Moderators: Andrii Nicheporuk, **Kira Bobrovnikova**	Irina Vasilyeva, Vladimir Lukin, Vyacheslav Kharchenko, and Andriy Nereta *Combined Processing of Satellite and UAV Data to Increase the Classification Reliability* Alexandr Zasornov, Iryna Zasornova, Kira Bobrovnikova and Viktoriia Buzyl *Theoretical and practical basics of creating a virtual microcontroller system of relay power supply of the heating element* Tetiana Hovorushchenko, Serhii Aleksov, Egor Ishtvan, Oleg Voichur and Peter Popov *Recognizing the Situations and Supporting the Decision-Making in the Residential Luminosity Control Subsystem of «Smart House» Cyber-Physical System* Oleksandr Melnychenko, Oleg Savenko *A Self-Organized Automated System to Control Unmanned Aerial Vehicles for Object Detection* Viacheslav Oliinyk, Vladimir Lukin, Petro Brysin *Approaches to Time Delay Estimation for Wideband Signals Embedded in Non-Gaussian Noise Received by Two Sensors* Tetiana Shmelova, Dmytro Kucherov, Serge Dolgikh, Vasyl Kondratyuk and Oleksandr Kutsenko *Intelligent Control in Unmanned Autonomous Aerial Mobility Systems*
Section Session 3 Computer systems and networks **March 24th 2023** 14.00-15.30 Moderators: **Andrii Nicheporuk**, Kira Bobrovnikova	Anastasiia Nicheporuk, Andrii Nicheporuk, Andrzej Kwiecien *Behavioral Model of a Smart Grid Cyberphysical System Functioning under the Influence of MitM Cyberattacks* Victor Timchenko, Yury Kondratenko and Vladik Kreinovich *The Architecture of Optical Logical Coloroid with Fuzzy Computing* Yaroslav Nykolaychuk, Volodymyr Hryha, Nataliia Vozna, Ihor Pitukh and Lyudmila Hryha *High-performance multi-bit adder-accumulators as components of the ALU in supercomputers* Bohdan Durnyak, Mikola Lutskiv, Petro Shepita *Simulation of a Hybrid Operation of the System with a Simplified Version of the Fuzzy PD-Controller* Liliia Shumyliak, Luboš Cibák, Sergey Ostapov, Abdel-Badeeh M. Salem and Yaroslav Skrypnyk *Practical Implementation of Smart Contracts for Payment of Digital Goods* Yurii O. Hodlevskyi, Tetiana A. Vakaliuk, Oleksii V. Chyzhmotria, Olena H. Chyzhmotria and Oleh V. Vlasenko *Finding Anomalies in the Operation of Automated Control Systems Using Machine Learning*