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Lodz University
of Technology

Ministry of Education and Science of Ukraine
Lviv Polytechnic National University
Department of Automated Control Systems
Comenius University Bratislava (Slovakia)
Lodz University of Technology (Poland)



CONFERENCE PROGRAM

**II International Scientific and Practical Conference
“Computational Intelligence and Smart Systems”**

September 25-27, 2025, Lviv

PROGRAM COMMITTEE

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Address of Organizing Committee



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Address: 28a Bandery St.,
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Email:
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Conference web site:

<https://science.lpnu.ua/ciss-2025>

General Information

The conference will be held at the Institute of Computer Sciences and Information Technologies of Lviv Polytechnic National University (28a S. Bandery St., 5th floor, 8th floor) in mixed format.

CONFERENCE SCHEDULE

September 25, 2025

10³⁰-11⁰⁰ Registration of the Conference participants

Work format: mixed ([online](#)/offline)

Venue: smart space “Agiliway”, 8th floor, building 5 of LPNU

11⁰⁰-11³⁰ CONFERENCE OPENING

Opening speech of Prof. **Vasyl TESLYUK**, Head of Department of Automated Control Systems, Institute of Computer Sciences and Information Technologies, Lviv Polytechnic National University.

PLENARY SESSION

11⁰⁰-13⁰⁰

Work format: mixed (online/offline)

Venue: smart space “Agiliway”, 8th floor, 5 building LPNU

[Online link](#)

Section Chairman: Vasyl TESLYUK

Moderators: Mariana SENETA, Andrii PUKACH

Welcoming speeches

Invited speakers:

12⁰⁰ - Gordon Hunter, Kingston University, London, United Kingdom

“How noisy are your knees - and should you worry about it? Using Acoustic Signals from Knee Joints to Detect or Predict the onset of Osteoarthritis”

11⁰⁰-13⁰⁰ Plenary session

13⁰⁰-14⁰⁰ Coffee break

14⁰⁰-16³⁰ Regular session

Regulation

Report: plenary session – up to 15 minutes

regular session – up to 10 minutes

discussion - up to 7 minutes

Volodymyr Chornenkyi. COMPUTATIONAL INTELLIGENCE METHODS FOR MOBILE SIGN LANGUAGE RECOGNITION IN SMART SYSTEMS

Roman Lysenko, Oleksa Skorokhoda. DATA-DRIVEN ADAPTATION FOR PREDICTIVE AND RESILIENT MICROSERVICE ARCHITECTURE BASED ON EVOLVING PETRI NETS

Andrii Pukach, Vasyl Teslyuk. MODEL OF MAXIMAL WEIGHTS' REVERSE CHAINS FOR ANALYSIS OF THE IMPACT FACTORS IN SOFTWARE COMPLEXES' SUPPORT AUTOMATION AREA

13⁰⁰-14⁰⁰ - Coffee break

REGULAR SESSION

14⁰⁰-16³⁰

Section Chairman: Oleh BEREZSKY

Moderators: Mariana SENETA, Yurii OPOTIAK

Work format: offline

[Online link](#)

Oleh Berezsky, Mykola Berezkyi, Oleh Pitsun. COMPUTATIONAL COMPLEXITY OF DISCRETE FRESCHÉ AND HAUSDORF METRICS AND THEIR MODIFICATIONS
Bohdan Borkivskyi, Vasyl Teslyuk. ADAPTING SEGMENT ANYTHING MODEL FOR IMPROVED OBSTACLE RECOGNITION IN CLOSED SPACE
Taras Holubets, Mykola Medykovskyy. PREDICTING HUMAN GIVE-UP DECISIONS FROM FULL-SEQUENCE MISTAKE ANALYSIS
Vasyl Teslyuk, Stanislav. Ivasiv. LEVERAGING GPU FOR MACHINE LEARNING ON WINDOWS: CUDA AND TENSORFLOW IN WSL2
Ihor Drozdov, Bohdan Pavlyshenko. TEXT ANNOTATION WITH AUGMENTATION USING LLM-DRIVEN APPROACH FOR NAMED ENTITY RECOGNITION
Vitalii Pretsel, Roman Shuvar. CONVERGENCE METRICS ANALYSIS FOR GENETIC ALGORITHMS. A COMPOSITE CONVERGENCE SCORE
Anastasiia Fedenkiv, Petro Liashchynskyi. AN OVERVIEW OF DEEP LEARNING METHODS FOR AUTOMATIC REPORTING IN DIGITAL PATHOLOGY
Ihor Prots'ko, Oleksander Gryshchuk, Roman Rykmas. HIGH-PERFORMANCE COMPUTING OF MODULAR EXPONENTIATION OVER LARGE INTEGER NUMBERS

ONLINE REGULAR SESSION 1. Day 1

14⁰⁰-16⁰⁰

Section Chairman: Ivan TSMOTS

Moderators: Iryna KAZYMYRA, Denys RUDAVSKYI

Work format: online

[Online link](#)

Rostyslav Zahvoiskiy, Iryna Kazymyra. COMPREHENSIVE MONITORING PLATFORMS FOR MODERN COMPUTING ENVIRONMENTS
Volodymyr Solohub, Volodymyr Pashkevych. METHODS OF INCREASING THE EFFICIENCY OF PARTITIONING OBJECTS IN INFORMATION SYSTEMS
Maksym Kravchuk, Iryna Kazymyra. COMPUTATIONAL MODELS AND TOOLS FOR EMOTION RECOGNITION IN USER-GENERATED TEXT
Victoria Vysotska, Kirill Smelyakov, Anastasiya Chupryna, Maksym Derenskyi, Vadim Repikhov, Mykyta Hvozdiev. IMPROVING OPTIMAL ROUTE GENERATION RESULTS

Maksym Sai, Iryna Kazymyra. AI-DRIVEN SOLUTIONS FOR ENHANCING VOLUNTEER COORDINATION IN CRISIS RESPONSE
Serhii Hlod, Anastasiia Doroshenko. COMPARATIVE STUDY OF YOLO-BASED APPROACHES FOR MILITARY OBJECTS DETECTION IN CORRUPTED VISUAL DATA
Maksym Hladchuk, Volodymyr Riznyk. OPTIMUM INTERFERENCE IMMUNITY ENCODING DATA IN SMART SYSTEMS
Vladyslav Kotsovsky, Anatoliy Batyuk. A NEW MODEL OF THE NEURAL NETWORK REGRESSOR
Viktoriia Badz, Vasyl Teslyuk. THE APPROACH FOR DETERMINING THE AUTHORSHIP OF ENGLISH-LANGUAGE TEXTS BASED ON RECURRENT NEURAL NETWORKS

September 26, 2025

REGULAR SESSION

10⁰⁰-13⁰⁰

Section Chairman: Vasyl TESLYUK

Moderators: Mariana SENETA, Olha NARUSHYNSKA

Work format: offline

Venue: smart space “Agiliway”, 8th floor, building 5 of LPNU

[Online link](#)

Artem Kazarian, Vasyl Teslyuk. AUTOMATION OF CONTENT CREATION AND PROCESSING USING LARGE LANGUAGE MODELS
Bohdan Pavlyshenko, Mykola Stasiuk. CLUSTERING UNSTRUCTURED DATA USING MULTILINGUAL EMBEDDINGS
Pavlo Grytsyuk, Lubomyr Sikora. FEATURES OF GENERATING A SEQUENCE OF BIVARIATE POLYNOMIALS AND FIBONACCI MATRICES
Nazar Luchyt, Mykola Medykovskyy. OPTIMIZATION METHOD OF ENERGY DYNAMIC PROCESSES IN COMPLEX ENERGY SUPPLY SYSTEMS
Pavlo Bratiuk, Leonid Ozirkovskyi. ANTI-PATTERNS OF COMPUTING THE AVERAGE POWER OF PULSED CURRENTS IN ALGORITHMS FOR MODELLING AND ANALYSING ELECTRONIC CIRCUITS
Yurii Kuzhii, Yurii Furgala. FEATURE EXTRACTION FOR PLAYER ROLE RECOGNITION IN CS2
Antonina Petrykovych, Roman Rybachok, Yuriy Pelekh. AN INNOVATIVE PLATFORM FOR RAPID JOB CANDIDATE SCREENING
Anton Borkivskyi, Volodymyr Hrytsyk. INTELLIGENT SYSTEM FOR NON-PERSONALIZED MONITORING OF PEOPLE MOVEMENT IN VIDEO STREAM
Markiiian Matsiuk, Vasyl Teslyuk. SIMULATION METHODS AND TOOLS FOR REINFORCEMENT LEARNING IN ROBOTICS

ONLINE REGULAR SESSION 1. Day 2

10⁰⁰-13⁰⁰

Section Chairman: Ivan TSMOTS

Moderators: Yurii OPOTIAK, Maksym ARZUBOV

Work format: online

[Online link](#)

Bohdan Shtohrinets, Ivan Tsmots. VERTICAL-PIPELINE ARCHITECTURES FOR EFFICIENT REAL-TIME COMPUTATION OF MULTI-OPERAND NEURAL OPERATIONS
Ivan Danych, Kvitoslava Obelovska, Zoreslava Shpak. GRAPH-BASED VISUALIZATION OF TRACEROUTE UTILITY RESULTS
Ivan Peleshchak, Vasyl Lytvyn, Victoria Vysotska, Oleksii Khobor, Mykhailo Luchkevych. CROSS-ATTENTIVE TINYBERT WITH LORA-ADAPTED BI-GRU FOR RELIABLE FAKE NEWS DETECTION

Denys Oliinyk, Yuriy Pelekh. INTEGRATION OF ARTIFICIAL INTELLIGENCE SYSTEMS IN WEB APPLICATIONS
Ivan Bulka, Bohdan Pavlyshenko. DOMAIN-SPECIFIC TUNING FOR GPT-BASED MODELS
Taras Mamchur, Ivan Tsmots. IMPROVEMENT OF METHODS FOR VERTICAL-GROUP CALCULATION OF BASIC MULTI-OPERAND NEUROOPERATIONS
Kateryna Buchko, Iryna Kazymyra. CLASSIFICATION OF UKRAINIAN PYSANKA PATTERNS BY REGIONAL ORIGIN: A TRANSFER LEARNING APPROACH
Oleksandr Ohlashennyi, Olha Narushynska, Volodymyr Riznyk. VECTOR MONOLITHIC CODES: A NEW METHOD OF ENCODING CATEGORICAL FEATURES
Volodymyr Petryna, Ivan Tsmots. OPTIMIZATION OF MACHINE LEARNING MODELS FOR INTELLIGENT CLASSIFICATION OF OBJECTS IN LARGE DATASETS FOR E-COMMERCE TASKS
Oleksandr Konduforov, Natalia Valenda, Victoria Vysotska, Anastasiya Chupryna. EVALUATING LLMS FOR MISINFORMATION DETECTION IN UKRAINIAN NEWS
Roman Rykmas, Ihor Prots'ko. IMPLEMENTATION OF FAST 2D-DHT BASED ON SHORT FAST ALGORITHMS
Oleg Riznyk, Ivan Tsmots, Evgeny Matviychuk, Evgeny Savelov, Roman Soltysik. DATA ENCODING AND TRANSMISSION METHOD BASED ON ADAPTIVE BARKER-LIKE PROTECTION
Solomiia Keda, Iryna Kazymyra. AI-DRIVEN JUSTICE: DEEP LEARNING APPROACHES WITHIN THE UKRAINIAN LEGAL FRAMEWORK
Oleh Kopylchak, Iryna Kazymyra. COGNITIVE DIFFICULTY ASSESSMENT OF EDUCATIONAL TEXTS USING LARGE LANGUAGE MODELS AND TRADITIONAL NLP
Oleg Riznyk, Yurii Kynash, Mariia Semeniv, Yuriy Pelekh. OPTIMIZATION OF 3D RENDERING USING A NON-EQUIDISTANT RAY TRACING ALGORITHM
Oleh Kernytskyy, Vasyl Teslyuk. ARTIFICIAL INTELLIGENCE AT EACH STAGE OF THE SOFTWARE DEVELOPMENT LIFE CYCLE
Halyna Unhurian, Bohdan Yashan. USING ARTIFICIAL INTELLIGENCE CHATGPT IN THE STUDY OF ALGORITHMIZATION IN SECONDARY EDUCATION INSTITUTIONS
Andriy Fesiuk, Yuriy Furgala. ON THE EFFECTIVENESS OF KEYPOINT FILTERING IN IMAGE MATCHING
Mykhailo Solomko, Volodymyr Riznyk. SELF-SOLUTION OF THE LOGICAL FUNCTIONS MINIMIZATION PROBLEMS USING COMBINATORIAL SYSTEMS TRANSFORMATIONS
Vasyl Tereshchenko, Pavlo Zakala. EVALUATING INFORMATION LOSS IN VARIATIONAL AUTOENCODERS AND DIFFUSION MODELS FOR DATASET DISTILLATION

ONLINE REGULAR SESSION 2

13⁰⁰-15⁰⁰

Section Chairman: Ivan TSMOTS

Moderators: Anastasiia DOROSHENKO, Viktor ZVARYCH

Work format: online

[Online link](#)

Oleksandr Karpin, Zinovii Liubun, Vasyl Mandziy. NEURAL NETWORK-BASED POSITION CALCULATION METHOD TO ENHANCE TOUCH PANEL ACCURACY
Baluk Sviatoslav, Antoniv Volodymyr. HYBRID SYSTEM FOR EARLY CROP DISEASE DETECTION
Tsmost Ivan, Lukashchuk Yurii, Tesliuk Sofiia. NEURAL-LIKE TABLE-ALGORITHMIC METHOD FOR REAL-TIME CRYPTOGRAPHIC DATA PROTECTION

Kvitoslava Obelovska, Anastasiya Doroshenko, Andriy Abzyatov, Oleh Liskevych, Rostyslav Liskevych. DIGITAL SKILLS, NETWORK INFRASTRUCTURE IN EU COUNTRIES BASED ON DESI 2025 DATA
Yurii Danko, Iryna Kazymyra. AI-BASED SYSTEM FOR ENHANCED MUSIC RECOMMENDATION QUALITY
Orest Vovchak, Zenoviy Veres. INTEGRATING PREDICTIVE MAINTENANCE INTO BYZANTINE CONSENSUS: A COMPARATIVE STUDY OF PBFT AND HOTSTUFF
Oleksandr Panchuk, Oleksa Skorokhoda. AI-BASED SOLUTION FOR INTELLIGENT CONTENT MODERATION AND FILTERING
Yurii Tsudzenko, Bohdan Pavlyshenko. INTELLECTUAL ANALYSIS OF TRANSACTION EXCHANGE IN BLOCKCHAIN-ORIENTED SOCIAL NETWORKS

ONLINE REGULAR SESSION 3-7

14⁰⁰-16⁰⁰

Section Chairman: Oleh BEREZSKY

Moderators: Iryna KAZYMYRA, Yurii OPOTIAK

Work format: online

[Online link](#)

Markiian Matsiuk, Vasyl Teslyuk. SIMULATION METHODS AND TOOLS FOR REINFORCEMENT LEARNING IN ROBOTICS
Liudmyla Hladka, Oleksandr Serdyuk. PROJECT-BASED SIMULATION OF SMART HOMES AND ENTERPRISES WITH CISCO NETWORKING ESSENTIALS IN THE TEACHING OF “COMPUTER SYSTEM ARCHITECTURE”
Anton Guda, Andrew Zimoglyad, Viktoriia Hnatushenko, Anna Zhurba. DEVELOPMENT OF A JFET MODEL WITH INCREASED ACCURACY FOR THE SMART HOUSE SENSORS AND AUDIO COMPONENTS
Anatoli Kovalenko. AI OPERATING SYSTEMS BASED ON DECISION THEORY
Dmytro Savchuk, Anastasiya Doroshenko. ENHANCING CONGESTION CONTROL WITH SHORT-TERM TRAFFIC FLOW PREDICTION
Zoya Kalinichenko. USE OF THE SMART SPECIALIZATION STRATEGY AS A BUSINESS TRANSFORMATION PROGRAM
Yurii-Marko Kulyk, Anatolii Batiuk. TECHNICAL AND PHYSIOLOGICAL CHALLENGES OF USING VIRTUAL REALITY HEADSETS INTO SYSTEMS WITH PROLONGED AND RELIABLE OPERATION
Nazarii Cherkas, Anatolii Batiuk. LAMPORT CLOCKS AS A MITIGATION TO TRANSACTION-ORDER MANIPULATION IN SMART CONTRACTS
Inna Rozlomii, Andrii Yarmilko , Serhii Naumenko. ENERGY PROFILING-BASED DETECTION OF NODE ANOMALIES IN SMART NETWORKS
Pavlo Liashchynskyi. COMPARING CNNs FOR HISTOLOGICAL IMAGE CLASSIFICATION
Myroslav Havryliuk, Ivan Izonin. ENSEMBLE OF BALANCED CLASSES TO IMPROVE THE ACCURACY OF INTELLECTUAL ANALYSIS OF SMALL-SIZED DATA
Yuriy Pelekh, Yurii Kynash, Oleg Riznyk, Taras Kovaliv. INTELLIGENT SYSTEM FOR MODELING AND OPTIMIZING IT PROJECT MANAGEMENT PROCESSES
Mykhailo Matsyshyn, Anastasiia Doroshenko. TRANSFORMING EDUCATION WITH AUGMENTED REALITY: INTERACTIVE CASE STUDIES.