



June 11-12, 2025
Ternopil, Ukraine
<https://citi.tntu.edu.ua/>

COMPUTER INFORMATION TECHNOLOGIES IN INDUSTRY 4.0 (CITI-2025)

The 3rd International Workshop

WORKSHOP PROGRAMME

Organizers, Partners and Sponsors



Ternopil Ivan Puluji National
Technical University
Member Of European
University Association

FAAI - 2022-1-PL01-KA220-HED-000088359



Association of Science
and Education of Ukraine



Kharkiv National University
of Internal Affairs



Co-funded by
the European Union

University of Bielsko-Biala, Poland



CEUR-WS.org

11-12, June, 2025, Ternopil, Ukraine

**The workshop will be held in the Zoom environment
according to the schedule of participants' performances
shown below**

Join a Zoom meeting

<https://us02web.zoom.us/j/3734325240?pwd=UENyULE3bnBsdHFHanFHY1FrbnZIUT09>

Meeting ID: 373 432 5240

Passcode: 654321

Attention!

During the workshop, changes are possible in accordance with the situation in Ukraine. In particular, in the case of air alarms, there will be breaks and continuation of the workshop will be after the air alarms are over

CITI-2025 General Timetable

June 11

| | | |
|----------|-------------|---|
| | 9:45-10:10 | Registration of workshop participants |
| | 10:10 | Workshop opening |
| | 10:10-10:20 | Welcome speech of the workshop organizers and PC members |
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| 1 | 10:20-10:30 | <i>Serhii Vladov, Victoria Vysotska, Vasyl Lytvyn, Nataliia Vladova and Yelyzaveta Sahun.</i> Intelligent self-monitoring and signal restoring system for the helicopter turboshaft engines gas temperature sensor with adaptive predicting |
| 2 | 10:30-10:40 | <i>Nataliia Petliak, Yurii Klots, Mikolaj Karpinski, Vira Titova and Dmytro Tymoshchuk.</i> Hybrid system for detecting abnormal traffic in IoT |
| 3 | 10:40-10:50 | <i>Andrii Stanko, Iryna Didych, Andrii Mykytyshyn and Mykola Mytnyk.</i> Predicting the level of CO in the air based on the UV index using artificial intelligence algorithms |
| 4 | 10:50-11:00 | <i>Viacheslav Kovtun, Oleh Yasniy and Oleh Kovaliuk.</i> Markov Model of Controlled Load Distribution in the Edge-IoT Subsystem |
| 5 | 11:00-11:10 | <i>Mykhaylo Petryk, Oleksiy Tsebriy, Yurii Stoianov and Oksana Petryk.</i> Automated Deal Amount Validation in CRM Systems Using Large Language Models |
| 6 | 11:10-11:20 | <i>Andrii Kovtko, Volodymyr Savkiv, Halyna Kozbur, Ihor Kozbur and Rostyslav Trembach.</i> Integration of mutation testing into unit test generation using large language models |
| 7 | 11:20-11:30 | <i>Viktor Khomyshyn, Oleh Pastukh, Vasyl Yatsyshyn, Nataliya Zagorodna and Ihor Baran.</i> Comparative analysis of ensemble methods for outlier detection in real estate |
| 8 | 11:30-11:40 | <i>Yurii Palianytsia, Vasyl Dunets, Grygorij Khymychs, Mykola Khvostivskyyi and Alexander Los.</i> Computer Simulation of Ultrawideband Vivaldi Active Phased Array Antenna |

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| 9 | 11:40-11:50 | <i>Volodymyr Vozniak, Oleksander Barmak and Iurii Krak.</i> Image Matching of Satellite and UAV for Visual Place Recognition Using YOLO |
| 10 | 11:50-12:00 | <i>Danylo Stukhliak, Oleg Totosko, Petro Stukhliak, Oleh Yasniy and Andrii Stanko.</i> Neural networks for processing experimental studies of the modulus of elasticity and hardness of epoxy composites containing Al₂O₃, ZnO and PTFE. |
| | 12:00-12:30 | Coffee break |
| 11 | 12:30-12:40 | <i>Igor Boyko, Marharyta Prachuk, Victoria Hykava and Mykhaylo Petryk.</i> Software System for Identifying Diffusion Parameters in Microporous Samples |
| 12 | 12:40-12:50 | <i>Mykhaylo Palamar, Oleksandr Liashchuk, Mykhaylo Strembitskyi, Andrii Chaikovskyy and Andrii Kondratiuk.</i> Information System for Direction Finding of Signal Sources in the Ultra-long Range |
| 13 | 12:50-13:00 | <i>Nataliya Bernatska, Elvira Dzhumelia and Orest Kochan.</i> The concept of development a digital twin based on the FIWARE framework for effective air quality monitoring in urban areas |
| 14 | 13:00-13:10 | <i>Ruslan Kozak, Yuriy Skorenkyy, Oleksandr Kramar, Taras Lechachenko and Halyna Brevus.</i> Cybersecurity provisioning for Industry 4.0 digital twin with AR components |
| 15 | 13:10-13:20 | <i>Andrii Melnyk, Lesia Dmytrotsa and Oleh Palka.</i> Dynamic Test Case Prioritization for Mobile Applications Based on Real User Behavior Data |
| 16 | 13:20-13:30 | <i>Ivan Borodii, Illia Fedorovych and Halyna Osukhivska.</i> Comparative Analysis of Large Data Processing In Apache Spark Using Java, Python and Scala |
| 17 | 13:30-13:40 | <i>Yuliya Averyanova and Yevheniia Znakovska.</i> Significant weather areas mapping for UAV route planning |
| 18 | 13:40-13:50 | <i>Quan Trong The and Nguyen Thi Huyen Chau.</i> An Appropriate Post - Filtering for GSC Beamformer |

June 12

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|---|--------------------|---|
| | 10:45-11:00 | Registration of workshop participants |
| 1 | 11:00-11:10 | <p><i>Vasyl Martsenyuk, Liudmyla Golovkova, Halyna Nahorniak, Oksana Garmatiuk and Yurii Dyshkant.</i></p> <p>Development of leadership competences in bachelor's and master's students as a factor in the formation of intellectual capital of modern entrepreneurship in the context of digitalization</p> |
| 2 | 11:10-11:20 | <p><i>Andriy Sverstiuk, Uliana Polyvana, Lyubomyr Mosiy, Olha Mosiy and Roman Butsiy.</i></p> <p>Approaches to the Development of Information Technology for ECG Analysis to Evaluate Quality of Life in Smart Cities</p> |
| 3 | 11:20-11:30 | <p><i>Mykola Khvostivskyi, Liliia Khvostivska and Iryna Dedit.</i></p> <p>Method and Computer Tool for Synphase Prediction of Computer Network Traffic Load Level</p> |
| 4 | 11:30-11:40 | <p><i>Petro Samuliak, Roman Tkachuk, Pavlo Tymkiv and Oksana Bahrii-Zaiats.</i></p> <p>A mathematic model of electrorretinogram for titanium dioxide (TiO₂) neurotoxicity risk assessment</p> |
| 5 | 11:40-11-50 | <p><i>Yaroslav Kotov, Evhenia Yavorska, Bohdan Yavorskiy and Oksana Dozorska.</i></p> <p>Conceptual Approaches to Data Transmission for AI-Assisted Patient Assessment</p> |
| 6 | 11:50-12:00 | <p><i>Dmytro Vakulenko, Lyudmila Vakulenko, Sviatoslav Gandzyuk and Nadiya Gandzyuk.</i></p> <p>Criteria for Assessing Status to Form Individual Training Trajectory</p> |
| | 12:00-12:30 | Coffee break |
| 7 | 12:30-12:40 | <p><i>Ihor Javorskyj, Roman Yuzefovych, Roman Pelypets, Roman Sliepko, Oleh Lychak and Pavlo Semenov.</i></p> <p>Analysis of mean square estimator errors of basic frequency for periodically non-stationary random processes</p> |
| 8 | 12:40-12:50 | <p><i>Andriy Sverstiuk, Taras Dubynyak, Liliana Dzhydzhora, Natali Yuryk and Yuriy Yuryk.</i></p> <p>Computer modeling of the process of shape deviations parameters control and analysis</p> |

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| 9 | 12:50-13:00 | <i>Mykhaylo Palamar, Mykhaylo Strembitskyi, Myroslava Yavorska and Andriy Palamar.</i> A Comparative Study of Bug Algorithms for Robot Navigation |
| 10 | 13:00-13:10 | <i>Ihor Konovalenko, Volodymyr Medvid, Oleksandr Shovkun, Kateryna Marushchak, Denys Baran and Bohdan Rusyn.</i> Automated Approaches to Determining Chicken Eggs' Parameters Based on Their Digital Images |
| 11 | 13:10-13:20 | <i>Denys Olianin and Halyna Tsupryk.</i> Transformer Neural Networks in Industry 4.0 |
| 12 | 13:20-13:30 | <i>Hryhorii Habrusiev, Vasyl Oleksiuk, Pavlo Chopyk and Iryna Habrusieva.</i> On the deployment of an open-source digital learning ecosystem |
| 13 | 13:30-13:40 | <i>Oleksandr Bryk and Oleh Pastukh.</i> Multi-Parameter Hemodynamic Monitoring via Machine Learning: A Data-Driven Framework for Cardiovascular Physiology |
| 14 | 13:40-13:50 | <i>Dmytro Vakulenko and Olena Hevko.</i> Telemedicine and Psychocorrection: A New Paradigm through Healthcare Data Processing Innovations |

TIME FOR PRESENTATIONS:

- paper presentation at the regular session – 5 min.
- discussion, questions – 5 min.

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Organized by:

**Ternopil Ivan Puluj National Technical University,
Faculty of Applied Information Technologies and Electrical Engineering**

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